RAILROAD GAZETTE

FRIDAY, APRIL 14, 1899.

CONTENTS.

Contributions.

The "Compromise Gage."

New York, April 10, 1899.

To the Editor of the Railroad Gazette:

In your issue of March 31 is a letter entitled "The 4 ft. 9 in. Gage." The 4 ft. 8½ in. gage is the general standard of this country. The 4 ft. 9 in. gage was adopted as a compromise gage many years ago by the Pennsylvania Railroad and is still maintained on that great system. When the southern railroads changed their gage they generally adopted the Pennsylvania gage.

The difference between gages, if I am not mistaken, is not an absolute but a relative one. The usual practice on American railroads is to open the gage slightly on curves, the common rule being $\frac{1}{16}$ in. for each degree of curvature; this would make the actual gage of a 4 ft. 8½ in. gage road on a four degree curve 4 ft. 9 in. On the Pennsylvania Railroad the same gage is maintained both on curves and on straight lines. As four degree curves are common in mountain and hilly districts the two gages are practically identical so far as rolling stock is concerned, but the 4 ft. 8½ in. gage roads narrow their gage one-half inch on straight lines, while the Pennsylvania maintains the same gage throughout.

If the practice of the Pennsylvania Railroad has been followed by the southern railroads this is the only variation of gage which now exists. If, however, these railroads have maintained the practice which was common among them in the 5 ft. gage days, of opening the gage on curves, a second element of irregularity exists and this is an element which there certainly seems to be no reason for maintaining. While there may be room for argument as to whether the practice of the Pennsylvania Railroad in maintaining the loose gage on straight lines is a good one, it certainly has not met the general approval of engineers who have had charge of track. The discrepancy is one which can gradually be removed without serious trouble by simply drawing in the gage on tangents when the tracks are relaid with heavier rails.

There are two questions, which, perhaps, it would be well to call attention to in your paper: 1st, Is the practice of maintaining a loose but uniform gage a good one? 2d, Does the practice of maintaining a loose uniform gage throughout prevail on the southern railroads which have adopted the 4 ft. 9 in. gage?

GEO. S. MORISON.

The Street Car Brake Tests.

Altoona, Pa., April 8, 1899.

To the Editor of the Railroad Gazette:

It would appear that the statement made on page 249 of your issue of April 7 in regard to the tests for power brakes on street railroads merited some consideration. "The efficiency of the braking system will be determined on the basis of E=WS÷D, where E is the efficiency, W the weight of the car, D the distance from the point at which the signal is given and the point of stop, and S the speed at the time of giving the signal."

Let us assume a set of conditions and see how this formula will work out. Suppose the car to weigh 10 tons and the speed at the instant the signal is given to be 10 miles per hour, equal to 14.6 feet per second. The kinetic energy of this moving mass is $\frac{1}{2} m v^2 = \frac{1}{2} \times \frac{20{,}000}{32.2} \times 14.6^2 = 66{,}200$ ft. lbs.

Suppose that the brake is instantly applied at its full force, just sufficient to allow the wheels to turn and not skid, and take the coefficient of friction at 25 per cent. of the weight in the wheels. Then a retarding force of 0.25×20,000=5,000 lbs., is exerted. As the kinetic energy is 66,200 ft.-lbs. the number of feet the car will move is $\frac{66{,}200}{5{,}000} = 13\ 24$ Putting these quantities in the equation $E = \frac{WS}{D}$ we have

$$E = \frac{10 \times 10}{13} = 7.5.$$

If now the signal to apply the brake had been given at the instant the car was moving 20 miles an hour instead of 10, its velocity would have been 29.2 ft. per sec.; kinetic energy, 265,000 ft.-lbs.; retarding force the same as before, and therefore D=53 ft. Then substituting $E = \frac{10 \times 20}{53} = 3.8$. Continuing these increments of speeds, the following table shows how E varies:

S Miles per Hour.	V Ft. per Sec.	D Feet.	E
10	14.6	13	7.5
20	29.2	53	3.8
30	44 0	1?0	2.5
40	58.4	212	1.9

Thus it will be seen that the same brake varies with the speed at the time of application, and rival brakes might be made to show variable results depending on the speed of the car at the instant the signal was given.

It is seen that the error lies in not bringing in the term S as a square. Using the formula $E = \frac{WS^2}{D}$ the following table shows the efficiency to remain constant with the same retarding force, no matter what the speed may be—which is as it should be:

S	V	D	E
10	14.6	13	75
20	29.2	53	75
30	44.0	1 0	75
40	58.4	212	75

W. E.

Railroad Assessment in Iowa.

Des Moines, Iowa, March 25, 1899.

To the Editor of the Railroad Gazette:

The railroad tax assessments have recently brought to this city representatives of nearly every railroad in the State. The Executive Council, consisting of the Governor, Secretary, Auditor and Treasurer of State, is required by law to fix the rate of assessment on the roads, and devoted an entire week to hearing arguments. The law clothes the Council with full power, and requires the members to take into consideration the actual value of all property, also the gross earnings per mile on each line, and any and all other matters which will enable the Council to arrive at the true value of every railroad. More interest than common was manifested in the hearings this year, owing to the fact that the Council decided to hold open sessions.

Special interest centered in the arguments of the representatives of the trunk lines. It has been the custom of these representatives, under the leadership of the Northwestern, to argue against the Council taking the gross earnings into consideration in fixing the amount of the assessment. But this year nearly every representative of a trunk line, with the exception of the Northwestern, contended that the gross earnings should be made the determining factor in making up that assessment. The other roads have discovered that the Northwestern has enjoyed a light assessment in proportion to its value, as compared with other roads. The revolt was general this year, and one or two of the representatives even went so far as to accuse the Council of having been too partial to that company in past assessments.

The assessment was completed this week by the Council, and the Northwestern has scored another victory. Several stormy sessions were held before the result was determined. There was no division on the resolution to place the total amount of the assessment at about the same as last year, $44,500,000, but when it came to the question of fixing the rate on each road then the trouble began. The Treasurer contended for an equitable assessment, and offered resolution after resolution adjusting the rate in various cases, so as to place all the roads on a line of equality, proportionately to their respective values, as shown by earnings. He made a direct assault on the Northwestern, and argued that the light assessment on that road was rank injustice to the other lines. The other three members of the Council said little, but constantly outvoted the Treasurer. He was "turned down" on nearly every point, and the assessment of each railroad was fixed at the same amount as last year, with the exception of a few branches of the C., B. & Q., which were lowered $500 a mile, and the Union Pacific Bridge and Terminal Co., which was raised from $35,000 to $50,000 per mile.

The assessment on the trunk lines remains the same, and the Northwestern is safe for another year.

The table gives the number of miles of road in Iowa, and the new rate of assessment per mile; also, for last year, the gross earnings, the operating expenses, the net earnings and the taxes paid, by the six trunk lines in the State.

A. B.

Railroad Assessment in Iowa.

	Number of miles of track in Iowa.	Assessm't per mile for year 1899.	Gross earnings. Total.	Gross earnings. Per mile.	Operating expenses Total.	Operating expenses Per mile.	Net earnings. Total.	Net earnings. Per mile.	Amount of taxes for 1898.
Chicago & Northwestern	1,151	$6,466	$9,751,669	$8,465	$6,557,589	$5,692	$3,194,080	$2.773	$222,550
Chicago, Milwaukee & St. Paul	1,546	4,864	9,058,240	5,858	5,538,509	3.582	3,519,719	2,276	234.715
Chicago, Rock Island & Pacific	1,061	6,926	6 583,047	6 2?6	3,931,444	3.724	2,651,603	2 512	219,988
Chicago, Burlington & Quincy	743	6.886	5,220,767	7,024	3,859 785	5,192	1,360 982	1,851	157 612
Burlington, Cedar Rapids & Northern	949	4,409	4,114,747	4,334	2,665,753	2,808	1,448,992	1 526	134,436
Chicago Great Western	462	4,760	2,468,589	5,338	2,018,515	4,365	450,073	973	71 419

The Cape to Cairo Railroad.*

By H. G. Prout.

Mr. Rhodes comes before the world with a project for a railroad to parallel the Indian Ocean and the Red Sea; a railroad 5,600 miles long; a railroad for at least a quarter of its distance close alongside navigable waters; a railroad which shall run for half of its distance through a land now thinly inhabited by stark naked savages, and for another quarter of its distance through a country peopled by a scanty population of barbarians; a railroad which for three-fifths of its length shall run through a country in which only the exceptional white man can live, because of the fevers.

When we say a railroad 5,600 miles long, we do not realize what that means until we stop and make a comparison. From New York to San Francisco by rail is only 3,266 miles. Mr. Rhodes' railroad, parallel to an ocean highway, through a country of savages and of fever, will be 71 per cent. longer. . . . . The scheme is so grand and brilliant that it captures the swift imagination, and the laggard judgment cannot catch up. We see not only a British line of railroad from Alexandria to the Cape of Good Hope, but we see laterals plunging in from the eastern coasts; then a great east and west line from the Red Sea, across Kordofan and Darfour and Wadai to the British Niger territory, and other east and west lines across British Central Africa; and suddenly a whole vast continent, one of the great divisions of the earth, is captured. . . . . Nothing quite so spectacular has been done in history since the time of Alexander the Great. . . . .

Somebody is reported to have estimated that the total length of the Cape to Cairo railroad will be 5,644 miles. The four miles gives an air of great precision, but no one knows within hundreds of miles what would be the developed length of any line of communication through the heart of Africa. . . . . On the whole, the distances are close enough for our present purposes; there are other elements of the problem which are subject to greater errors than these. I shall consider the distance to Cape Town from Alexandria, and not from Cairo, for obviously the line should go from sea to sea. This distance is about 5,610 miles.

The part of the line now built and building aggregates about 2,575 miles. There remains, therefore, 3,035 miles to build. This will cost, let us say, $14,000 a mile, or $42,500,000 for 3,035 miles of railroad. This is for a railroad of 3 ft. 6 in. gage, rails 50 lbs. per yard, engines a trifle heavier than those used on the elevated railroads of New York, an amount of rolling stock sufficient for three trains a week each way, running at 12 miles an hour; a telegraph line, water supply, and such stations, shops, and other fixed plant as will be necessary for this very light traffic. This estimate is not a random guess; it is the figure adopted by Captain Macdonald, Royal Engineers, for the railroad now building from Mombasa to Lake Victoria in Uganda. . . . . It is not supposable that Mr. Rhodes' railroad will be built as cheaply

* Extracts from an article in Munsey's Magazine for April.

as the Uganda line. The haul of his material would be vastly greater. . . . . Local labor must be uncertain and inefficient, and imported laborers must be expensive and very subject to the fevers which will be found the whole length of the line. . . . .

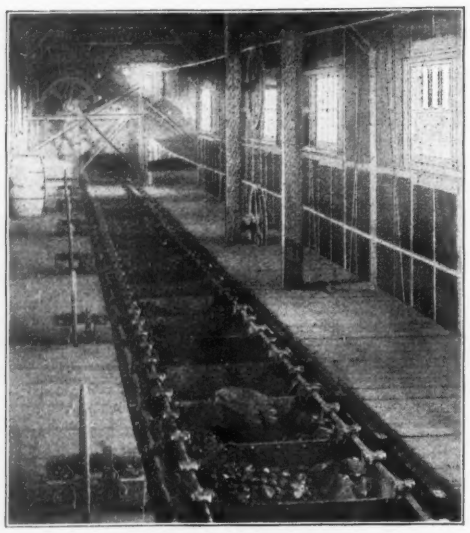


Fig. 6.—Horizontal Coal Conveyor at Top of Coaling Station.

Captain Macdonald made an estimate of the earnings of the Uganda railroad. This railroad taps the high country around the Great Lakes, which is supposed to be the best part of Central Africa. The altitude is considerable, with pretty wide variations of level, and the people themselves are of a higher type than the mass of the negro population of the continent. Their climate and their country are adapted to a greater variety of products than any other part of equatorial Africa, and they consume more cotton cloths and other products of civilization than other tribes. Captain Macdonald's estimate was that the traffic would not pay working expenses, and that if the capital invested in the road paid 3 per cent. interest there would be an annual deficit of $350,000. At this rate, estimating by miles alone, the deficit on the 3,035 miles yet to be built to complete the Cape to Cairo line would be about $1,600,000 a year. This is purely a guess. . . . .

There are two ways of accomplishing the same end, much simpler and cheaper. One is to use the natural waterways, building links of railroad between them; the other is to build in short trunks from the sea and spread out feeders from these east and west trunks. The ultimate result would naturally be a combination of these two methods of procedure.

Let us consider first the inland railroad and water line. From Cape Town to Buluwayo a railroad 1,360 miles long is now in operation. This could be continued, say, 650 miles to Lake Nyassa. On that lake there would be 340 miles of navigation. Then a link of 180 miles of railroad would take us to Lake Tanganyika, where would be about 400 miles of navigation. Another link of 300 miles would take us to the Albert Nyanza; then 190 miles by water would carry us to Dufile, on the Nile. North of Dufile are cataracts and rapids, and we should need to have a link of 125 miles of railroad to Lado. From Lado to Khartoum is 1,010 miles, as the Nile was logged 25 years ago. . . . . From Khartoum, still proceeding northward, about 545 miles of railroad, now built or building by the Sirdar, will take us to Wady Halfa. Thence to Cairo by the river is about 730 miles. . . . . Or, if we choose, we may take rail again at Assouan, a little more than 500 miles south of Cairo, the southern terminus of the Egyptian railroad system. This itinerary gives us only about 1,255 miles of railroad to build instead of 3,035, thus sweeping away at once 1,780 miles, or 59 per cent. of the railroad line. . . . . One obvious objection to this program is the frequent transhipment of freight. But really this objection strikes me as of but little importance, for the through freight would at best be but a very small volume. There are few commodities that can stand so long a journey, except by deep water; and in this case, it must be remembered that the through traffic would always have to compete with the ocean routes. . . . .

But, finally, the obvious thing is to use the Indian Ocean and the Red Sea for the long haul, and to run in lines from the ports. . . . . The cheapest way to conquer Africa is to use the oceans. If Mr. Rhodes gets to the south end of Tanganyika with his railroad, and puts steam on that lake, he controls all the country behind German East Africa, and the obvious way to the sea from that hinterland is not only by the Cape, but by Durban and Delagoa Bay and Beira, or perhaps down the Zambesi and out by other Portuguese ports. To the north of German East Africa is the railroad now building from Mombasa to Lake Victoria. Still further north, the natural trade route is down the Nile to Khartoum, or to Berber, and then by rail to the Red Sea at Suakin. A railroad 240 or perhaps 260 miles long, across an easy country, would put the Soudan trade in deep water at Suakin, and that railroad will probably be built long before any north and south railroad traverses any of the 23 degrees of latitude between the south end of Tanganyika and Khartoum. Further north than Berber no east and west railroad is needed, for the country on either side of the Nile is iron desert, absolutely hopeless, until we arrive at Egypt proper. . . .

It is reasonable to assume, also, that Great Britain, with her overwhelming commercial and military marine, can conquer and hold Africa by building short east and west lines in from the seaports more cheaply and efficiently than by long inland lines. But whatever she does, and whatever it costs her, humanity will gain by her conquest of Africa. . . . .

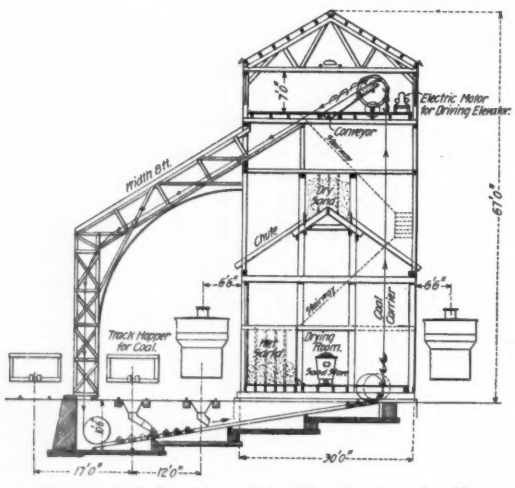


Fig. 4.—End Elevation of Coaling Station—Looking from East.

The Jersey City Coaling Station of the Erie Railroad.

About two years ago, the Erie Railroad took up for consideration in connection with extensive improvements at its Jersey City yard, the question of the best methods of coaling locomotives and disposing of ashes. After careful investigation of different plans and appliances by Mr. C. W. Buchholz, Chief Engineer, the work was put in the hands of the Link Belt Engineering Company and a plant has been built and worked successfully, and is perhaps unequalled in efficiency and economy.

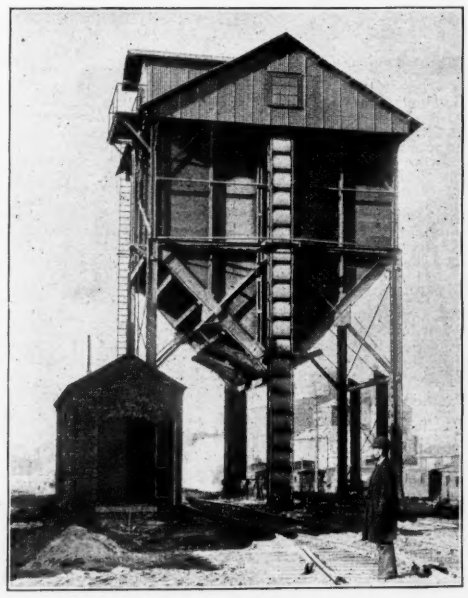


Fig 8.—Ash Handling Plant.

It was not only desired to reduce the cost of working, but also to center much of the work of cleaning and coaling the engines previously done at other places, and also to coal either lump anthracite or run-of-mine bituminous and to burn the inexpensive bird's eye and rice sizes of anthracite, using as a binder a small proportion of bituminous. The problem, therefore, was to build a plant that would store sufficient coal to meet all probable emergencies, would handle the largest and smallest sizes of coal and also mechanically mix bituminous and anthracite. All this work had to be done economically.

Fig. 1 shows on the left a view, looking west, of the coaling station and to the right the ash handling plant. The general arrangement of the conveyors,

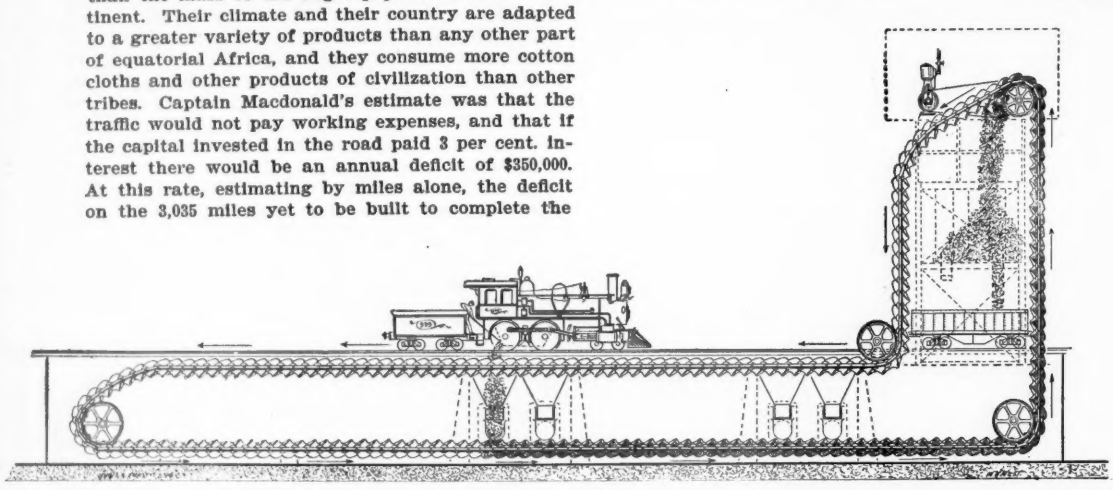


Fig 9.—Conveying, Elevating, Storing and Removal of Ashes.

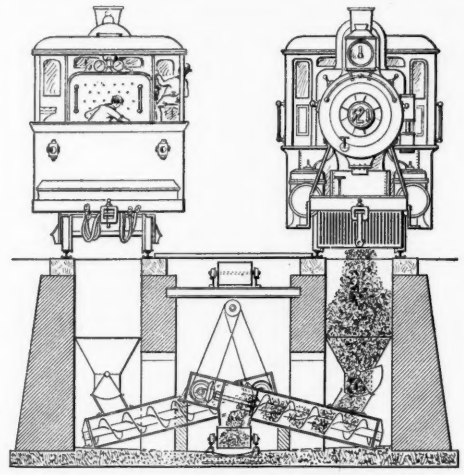


Fig. 10.—Ash Handling Device.

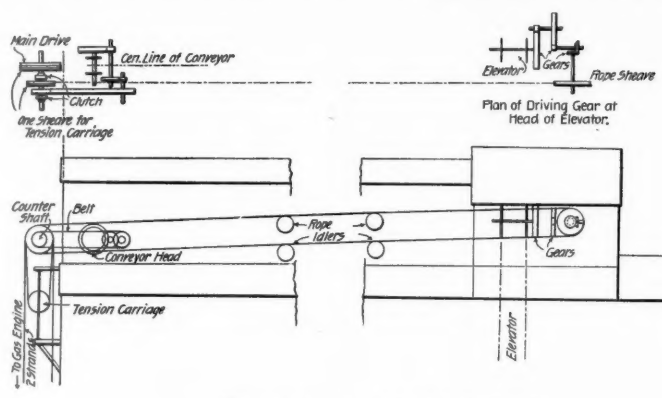


Fig. 5.—Method of Driving Conveyors.

the method used in storing the coal and loading the tenders is shown in Fig. 2. There are chutes on both sides of this building, so that locomotives can be coaled while on the track nearest to the building on either the north or the south side.

The carrier is made up of a line of continuous overlapping buckets rigidly secured to two strands of chain, by which the coal is carried along the horizontal run and up the vertical leg without the possibility of spilling. Above the horizontal run and at the left of Fig. 2, where a coal car is shown, are two track hoppers, into which the coal to be stored is dumped. Each of these is fitted with an automatic feeding chute of the type shown in Fig. 7, and the chutes have a pair of small wheels designed to travel on the sides of the overlapping buckets. As the line of buckets moves forward the wheels follow the convexed and concaved contour of the sides, and the lip of the chute is alternately raised and lowered. The amount of this raising and lowering is regulated by a hand wheel and determines the quantity of coal that is to be placed in each bucket.

The loaded buckets on reaching the head wheels of the carrier become inverted and discharge their contents into a chute leading to a conveyor which runs horizontally through the lantern of the 2,500-ton storage pocket. This is a double-strand, suspended-flight conveyor, and by it the coal is deposited in any of the 14 bins composing the pocket, the hand wheels show in Fig. 6, serving to open and close the gates in the bottom of the steel trough of the conveyor.

The framing of the building is shown in Fig. 3 and in Fig. 4 is given an end elevation of the sand-house end of the building. The arrangement of tracks to the left of the building is not shown correctly in this latter view, the true positions being shown in Fig. 1.

The machinery is driven by equalizing gears, which in turn are driven by Manila ropes, as indicated in the diagram, Fig. 5. The gas engine, which drives the machinery is in a small brick building at the west end of the coaling station. The engine is a No. 8 Otto, developing 36 actual horse power and is on the ground floor on a solid foundation. The engine for the ash handling station is a No. 6, 19 h. p. Otto. This engine drives all the machinery for handling all the ashes and loading them on the cars. These engines are running continuously, but are automatic and do not require constant attention.

The machinery readily places 90 net tons of coal in storage per hour, and it is the practice to use one of the track hoppers exclusively for bituminous and the other for anthracite, which renders it unnecessary to change the angles of the automatic chutes. When the proper inclinations have been found they are retained until a change of practice dictates alteration. The lump anthracite is deposited in certain bins of the pocket, the bituminous in others, and when it is desired to store the mixture of bird's-eye or rice and bituminous the two automatic feeding chutes are run simultaneously, the wheels on their hinged ends being adjusted so that one chute will deliver to each one of the line of buckets a certain amount of bituminous, while the other will place the desired percentage of small anthracite with it. The two kinds of coal become thoroughly mixed as they are transferred from the carrier to the overhead conveyor and from the conveyor to the mixture bins. This mixing of the inexpensive sizes of anthracite with bituminous is, therefore, done without any additional expense.

The bottom of the storage pocket is inclined in two directions, so that the coal stored in each bin will naturally flow to the two points of egress—one coaling chute at either side, or a total of 28 for the 14 bins. What is known as an "undercut" gate has been adopted for use in connection with these chutes. Its method of working while coaling is as follows: The tender having been brought to position, the fireman, by means of the hand wheel, shown in Fig. 6, lowers the counter-weighted chute, and then pulls down on the lever having the hand grip, which opens the under-cut gate. This gate operates by describing an arc of a circle, and in closing cuts up through the stream of coal; so that even a very large lump cannot prevent its instant closing. After shutting the gate, the fireman uses the hand wheel to swing up the chute, that it may not form an obstruction to the stack of the locomotive next following. While he is loading his, seven other firemen may be coaling their locomotives—i. e., four may be coaled at each side of the pocket simultaneously, and the time required is from two to four minutes.

The attainment of desired and essential results without relative expense is a characteristic of the installation. An additional example is the method employed to lubricate the coal carrier and also the ashes carrier. The two strands of chain to which the buckets are attached are connected by shafts, which serve as journals for the small rollers that carry the conveying line. In the hubs of these rollers are inserted oil tubes, or curved fingers, and adjacent and parallel to the track on which the rollers run, and near the automatic feeding chutes, is placed a long, narrow oil pan, from which the fingers scoop sufficient oil to lubricate the axles of the rollers and the joints of the chain. The line of buckets is about 225 ft. long and travels at 50 ft. per minute, so that the lubricating is done in less than five minutes, after which the oil pan is shifted out of the reach of the fingers. This oil reservoir is placed below the general level of the track, to prevent the fingers from striking its ends on reaching and passing it, and to permit the fingers to come in contact with the oil, the track is depressed as shown. This means of oiling not only effects economy by the labor saved, but is sure and thorough.

Fig. 1.—Coaling Station and Ash Handling Plant of the Erie Railroad at Jersey City, N. J.

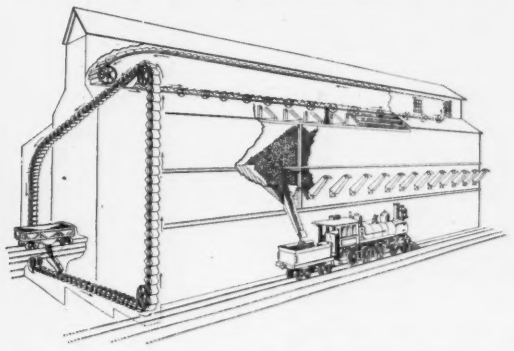
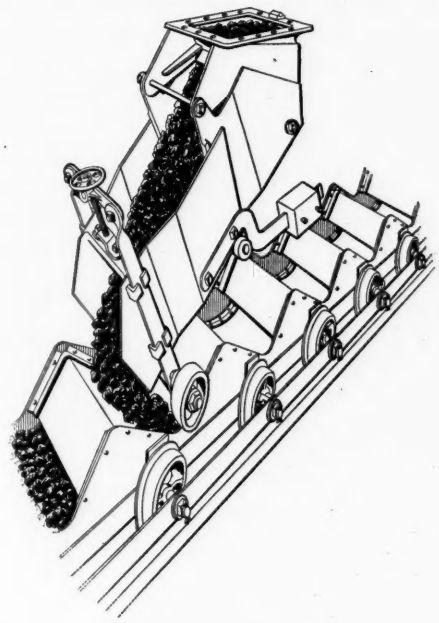


Fig. 2.—General Arrangement of Conveyors in Coaling Station.



In Low Position—Delivering.

Fig. 7.—Automatic Feed Chute.

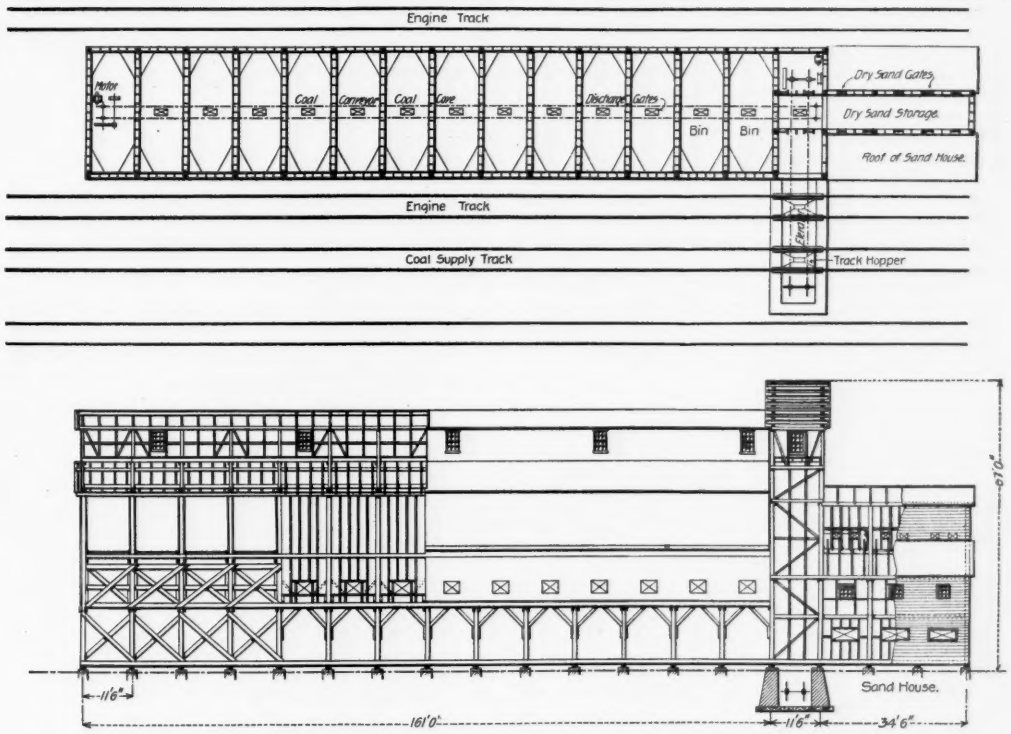


Fig. 3.—Framing of Erie Coaling Station, with Plan of Horizontal Coal Conveyor Room at Top of Building.

Ash-Handling Plant.

In the ash-handling part of the plant the carrier used to take the ashes to the storage pocket is of the same type as the coal carrier, but the method of feeding is different. As shown in Fig. 10, the tunnel in which the 100 ft. horizontal length of the carrier is placed, is between two tracks. Beneath each of these tracks are two double ash pits, each 25 ft. long, and each hoppered division of these four pits is fitted with a swinging gate, which regulates the flow of the ashes to an inclined screw conveyor connecting the hopper and the carrier. Each one of these pits has capacity to hold the ashes from at least six locomotives, and assuming that it requires

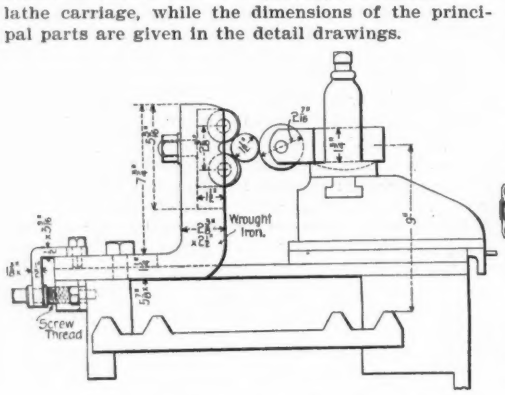
five minutes to draw the ashes from one, in 20 minutes 24 locomotives may be cleared at the four pits. The conveying machinery can empty the pits in half this time, rendering it unnecessary to run it continually. The steel storage pocket to which the ashes are carried will hold the ashes from about 150 locomotives, though it is the practice to empty it each day. This is done through four chutes, two being on either side of the doubly inclined bottom of the pocket, so that the ashes may be fed to cars on either of two tracks.

An important feature of this plant is, that it occupies such a small amount of valuable space. In the ash-handling part of the outfit, the machinery is entirely out of the way and the steel storage pocket is so made as not to reduce the surface desirable for tracks, and the advantage of this space economy will commend itself most forcibly to those in charge of busy stations where the trestle system, for instance, is used for coaling.

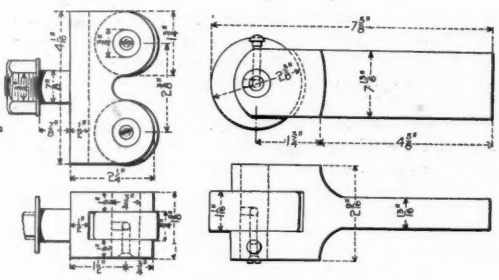
As mentioned, the ash-handling machinery is driven by one 19 h. p. gas engine, and by means of friction clutches any one of the eight screw conveyors is readily thrown into or out of operation, this being done by a man in the tunnel, who also attends to the opening and closing of the swinging regulating gates. This man and an engineer are required to attend the ash-handling machinery while it is in operation, and to operate the coal-handling machinery four men, one an engineer, are employed.

Burnishing Tools of the Southern Railway.

Mr. W. H. Owens, Master Mechanic of the Southern Railway has found that rolling the journals of car and locomotive axles gives such good results that it is now the practice at the Manchester shops of that road to also roll the crank pins, and the valve and piston rods of locomotives and air pumps. For finishing rods a special device has been made which is shown in the engravings, attached to a lathe carriage, while the dimensions of the principal parts are given in the detail drawings.



Lathe Attachment for Rolling Round Rods.



Burnisher for Round Rods.

It will be seen that in addition to a single roller, $1\frac{1}{16}$ in wide by $2\frac{5}{8}$ in. in diameter, which is mounted so as to fit the tool post, there is a back rest attached to the lathe carriage which has two rollers, $\frac{3}{4}$ in. wide by $1\frac{3}{4}$ in. in diameter, for keeping the work in line and preventing springing. The back rollers are mounted in a small frame which fits into a slot in the stand, so that it can readily be taken out by removing a single nut. The bottom of the stand is slotted to fit the carriage being held in place by bolts, and as the bolt holes in the stand are oblong, it can be moved forward or backward to suit the work; a screw is placed at the rear for setting up the back rest to the work. The back rollers shown in the drawings are $2\frac{3}{4}$ in. from center to center and are used with rods of small diameter, while a pair of rollers of the same size but mounted in a frame $3\frac{3}{8}$ in. between centers is used for rods of $3\frac{1}{2}$ in. diameter and larger.

We are informed that this lathe attachment is inexpensive and is made entirely of wrought iron with the exception of the rollers, which are of hardened steel. To finish a rod by the rolling process requires about the same time as to take a cut with a coarse feed, and when rolling the lathe is run at about the same speed used for turning.

For finishing axle journals and crank pins Mr. Owens uses a single steel roller, 2 in. wide by 3 in. in diameter, mounted in a frame to fit the tool post of the lathe. The surfaces produced in this way are considered superior to those made by polishing with emery and oil, while costing less.

Revised English Train Rules.

The railroads of England have made a complete revision of their rules for the operating department; and one road—the London & Northwestern—whose code is before us, has been using the new rules for about a year. Some of these rules are of special interest in this country just now, notably those concerning hand-lamp signals. As the interest in the use of green for all-clear in fixed signals becomes more widespread, the use of green in other signals will come up for consideration; and in this respect the English code may afford us some light. We quote this portion of it below. It will be agreed that, if our transatlantic cousins can satisfactorily use the same or almost the same lamp-color indication for a number of different things, some of our objections to the supposed dangers of inconsistency in signals are of less weight than they had been supposed to be.

Another chapter of the English book which may be instructive to us is that on the temporary use of single track on a double-track road, which subject has lately been under discussion here in consequence of a serious collision between two passenger trains which were being run under that arrangement. The English practice in this feature is not materially different from what it has been for years, but the rules have been much amplified, and now constitute a pronounced example of the extremely detailed method of instructing men that is characteristic of English railroad rules. American railroad men, from a habit of mind which is almost universal, look with indifference, if not contempt, on rules like those of the English, which appear to them a wilderness of words. We shall not say that this view is wholly unreasonable; nevertheless the English rules have many good points and we quote them in part below.

In these, as in the English block-signal rules, copied in the Railroad Gazette in June, 1895, a noticeable feature is the constant throwing of responsibility upon the man who does the work. Instead of trying to lay out a course of procedure for a particular person, with all possible concentration of responsibility upon him, the aim seems to be to accurately and fully describe just what is to be done, and then leave each man to find his own place as related to others engaged in the same work or department. Frequent use is made of the phrase "or the person in charge," thus reducing the chance that a man may shirk responsibility on the ground that he lacked authority. In actual practice important duties must often be performed by low-grade men; English rules recognize this and provide for it.

The arrangement of the matter in the London & Northwestern code is about as different from the arrangement of American codes as it could well be. After the general regulations the first subject is fixed signals. Then follow such chapter headings as these: "Signaling in Connection with Trains Shunting or Running in the Wrong Direction;" "Detention at Home or Starting Signals;" "Detonating Signals;" "Signaling in Foggy Weather or During Falling Snow;" "Working of Level Crossings;" "Trains Stopped by Accident, Failure or Obstruction." Each of these topics fills from two to three pages. There are 19 of these chapter headings in the main body of the book; but a third of the book, more or less, consists of appendixes. These have to do with working single lines by train staff, working freight lines under the time interval system, working the vacuum automatic brake, working single lines by electric train tablet or electric train staff block system, etc. Three appendixes are given only by title, the rules themselves being in the time-table; which time-table, by the way, is a book about the size of the Official Railway Guide, and it contains a mass of local and general rules which would engage a student brakeman a month or more.

The code book is indexed in great detail, the index filling 28 pages. We note a few peculiarities of this code in the order in which we find them in the book:

Rule 23a requires the exercise of proper care in getting between vehicles to couple or uncouple them, and shunting sticks must be used "when practicable." Under fixed signals, red means "danger" and green "all right;" these terms for "stop" and "proceed" appear to be the standard throughout the book. Signals are spoken of as being "put on" and "taken off," but generally the language is so minute, not to say redundant, that the reader, however ignorant, can have little cause for doubt as to the meaning of these or other terms. On some companies' lines, but apparently not on the London & Northwestern, a purple light is used as the danger signal in semaphores controlling sidings and bay lines. Back lights show white when at danger and a purple light or no light when at "all right." The old inconsistent rule requiring an engineman to have his speed under control the moment he passes a distant signal is at last abandoned. The new rule, No. 36, simply requires that he reduce speed and proceed cautiously towards the home signal, prepared to stop if necessary. The use of green lights in fixed signals for "all right," which became the standard on the London & Northwestern several years ago, had not been extended to all the company's lines when this code was adopted, and the circular issued with the new books named 24 branches on which white was still in use; but the signals on these branches have since been changed and now the practice is uniform throughout the Northwestern lines.

As in previous editions of the English Clearing-house Code, there are several rules authorizing signalmen to permit engines to pass semaphore signals without lowering the blade from the stop position. This seems to be a formal recognition of a practice which is of long standing and which obviates the great expense which would be necessary to provide signals for all the switching movements that have to be made.

Rule 50 prescribes hand signals, to be made with flags by day and with lamps by night. Red always indicates danger. The purposes for which a white or a green hand signal is used are as follows:

1. Move forward, in shunting. Rule 52.	White Light moved slowly up and down.
2. Move back, in shunting. Rule 52.	White Light waved slowly from side to side across body.
3. Move forward slowly, in shunting. Rule 52.	Green Light waved slowly up and down.
4. Move back slowly, in shunting. Rule 52.	Green Light waved slowly from side to side across body.
5. Guard's Signal to Engine-driver to start, and to indicate that guard or shunter has rejoined train. Rules 55 and 171.	Green Light, or Green Flag (where used), waved slowly from side to side above the head by guard.
6. To indicate by night to Engine-driver of Goods train after starting that his train is complete. Rule 171.	Green Light waved slowly from side to side by Guard from his van.
7. To indicate to Engine-driver that train is divided. Rule 220.	Green Light or Flag waved slowly from side to side by Signalman.
8. To give an All Right Signal to Engine-driver where there is no starting signal. Rule 41.	Green Light or Flag held steadily in the hand by Signalman.
9. To authorize Engine-driver to pass Starting Signal at Danger, for shunting purposes. Rule 44.	Green Light or Flag held steadily in the hand by Signalman.
10. To indicate to Engine-driver in foggy weather or during falling snow that the signal is at All Right. Rules 81 and 144.	Green Light or Flag held steadily in the hand by Fog-signalman.
11. To reduce speed for Permanent Way operations. Rules 76-155-244 and 253.	Green Light or Flag waved slowly from side to side by Platelayer.
12. To give an All Right Signal to Engine-driver when Fixed Signal is disconnected or out of order. Rule 73.	Green Light or Flag held steadily by Hand-signalman at the Signal.
13. To indicate to Engine-driver that Section is clear, but Station or Junction is blocked. Rule 40.	Green Light or Flag held steadily by Signalman after bringing train to a stand and giving verbal warning.
14. To indicate to Engine-driver of goods train, timed to stop at a station, that there is nothing to pick up, and that if he has nothing to put off he may run through. Rule 173.	Green Light or Flag waved slowly up and down.
15. To indicate that Catch Points are in right position for train to pass in facing direction. Rule 236.	Green Light or Flag held steadily in the hand by man at Points.
16. To caution Engine-driver entering Terminal Station or Station worked under special instructions, if line is not clear. Rule 87.	Green Light or Flag held steadily in the hand by Signalman after bringing train to a stand and giving verbal warning.
17. To caution Engine-driver of following train on Time Interval system. Time Interval regulation 3. (Appendix IV.)	Green Light or Flag held steadily in the hand by Signalman after bringing train to a stand and giving verbal warning.
18. To indicate to Engine-driver that Slip portion is detached. Slip Carriage Regulation 7. (Appendix X.)	Green Light or Flag waved slowly up and down by Slip Guard.

Rule 55 makes elaborate provision for protecting a train which is detained at a home or starting signal. Some of the worst collisions in England have been due to a signalman forgetting that a train was waiting near his cabin, and this rule aims to provide against such forgetfulness. As soon as a train is stopped at such a signal the engineman must sound the whistle; and, if this does not attract the attention of the signalman, the guard, shunter or fireman must go into the signal box and remain there until the signalman can give permission for the train to go forward. In foggy weather a man must go to the signal box immediately. There is a whole page of regulations prescribing which man of the train crew shall, under certain circumstances, go to the cabin. This much is in the uniform code. In addition, the London & Northwestern issues with the code a circular prescribing the procedure when the fireman is unable to remain in the signal box because the engine has to be used in switching. Before the engine is detached from the train he must take from it the iron target which is used in front of the engine to denote the description of train, and place it on the lever of the home signal for the line occupied. This will act as a reminder to the signalman that the line is not clear, and release the fireman to assist in the shunting. When the shunting is finished and the signalman is ready to cross the train to its proper line, the fireman must go back to the signal box, and, after obtaining the signalman's authority, withdraw the iron target from the lever on which it has been placed. In cases where engines are not provided with suitable targets, a red flag must be tied on to the signal lever.

To indicate that a signal is not in use two boards in the shape of the letter X are nailed over the middle of the semaphore arm. As the English arms are

on the left of the post and as, from the picture in the book, these boards would seem to be quite heavy, the reader is naturally curious to know what branch of the carpenter's art one would have to study, to be able to attach these boards without building up a staging from the ground.

The rules concerning torpedoes have a note saying that a new kind of detonator has been introduced on some lines; and that only one of this kind is placed on the rails when signaling for a fixed signal.

The rule requiring the guard to go back with a flag when a train is stopped between stations has a clause, 217n, which says: "It will not be necessary to carry out the provisions of this rule for the protection of trains on single lines worked upon the electric train tablet or electric train staff block system, but Rule 14 A of the Regulations, referred to, must be complied with. (This rule provides for taking the staff to the nearest station in case of a breakdown.)

This flagging rule is no improvement on the old one. It begins: "When a train is stopped by an accident or from any cause (unless it has arrived at or passed the home signal)," etc. To the American mind a train standing at a home signal, with its tail end perhaps half a mile back, is in about as dangerous a position as it would be on the open road. In fact, the tail end is on the open road, in many cases. The only justification we can imagine for this form of rule is the fact that the flagging rule is of no benefit in any event, and, therefore, may as well be in one form as another.

The rules for trackmen ("platelayers") provide for a fixed caution board to be used where reduced speed must be enjoined on every train for a long period. This board is apparently about six feet long and is placed horizontally at the top of a post. Its right hand end is pointed and the left hand is notched like a distant signal. At night two lights are hung on this board, a white light at the right of the center and a green light at the left. Elaborate precautions are prescribed to protect trackmen working in tunnels.

When a passenger stops a train by pulling the bell cord, and there is only one guard on the train, the fireman must go back with the flag, so that the guard can attend to the passenger.

The rules for "working the traffic of a double line over a single line of rails during repairs or obstructions" are copied, in part, in another column. (We refrain from quoting these rules in full on account of their great length—three columns of the Railroad Gazette).

English Clearing-House Rules for Trains Run by Pilotmen.

As a supplement to our article in this issue on Revised English Train Rules, we give here the principal rules for temporarily working the traffic of a double track railroad over a short piece of single track.

227. (i) A competent person must be appointed as Pilotman, who must wear, round his left arm above the elbow, a distinctive badge. Until the regular Badge can be obtained the Pilotman must wear a Red Flag tied round his left arm. No engine must enter upon any portion of the Single Line without the Pilotman being PRESENT and riding upon the said engine, unless two or more trains are required to follow in the same direction, in which case the Pilotman must order all trains to proceed except the last, upon the engine of which he must ride. In the case of an engine assisting in the rear of the last train, the Pilotman must ride on the assisting engine. If a special engine is supplied for the use of the Pilotman he must, after personally starting the whole of the trains, follow or accompany the last train. When it is necessary for the Pilotman's engine to accompany the last train, it must be attached to the front of that train, but the Pilotman must ride on the train-engine.

(ii) The Pilotman must show himself to the Signalman at each Box he passes.

(b) In addition to the foregoing precautions, three Detonators must be placed at both ends of the Line obstructed, a quarter of a mile from the point where Single Line Working commences, and a Red Flag by day, and a Red Light by night, or in foggy weather or during falling snow, must also be placed on the blocked Line near to the Detonators.

(c) If the obstruction has been caused by a disabled train or engine, no portion of the train or the disabled engine must be allowed to foul the Crossover road at either end of the Single Line Working unless the Pilotman is present.

(d) Before Single Line Working is put in operation, the Signalman at each end of the Single Line must, when practicable, advise the Signalman at the Box in the rear, and the latter must stop each train proceeding in the direction of the Single Line Working, inform the Engine-driver of the circumstances, and instruct him to proceed cautiously, the trains being accepted by the Signalman at each end of the Single Line in accordance with clause 5 of the Block Telegraph Regulations.

228. Single Line Working should be confined to points at which there are Fixed Signals with a Crossover-road, and at all times to the shortest length possible; but in the event of a Crossover-road not protected by Fixed Signals being used for Single Line Working, a competent man, with the necessary signals, must be placed at least three-quarters of a mile beyond the Crossover-road to Signal in place of the Distant Signal, and another man (similarly provided) at the Points to Signal in place of the Home Signal. Should the distance of three-quarters of a mile fall within a Tunnel, or close to the mouth of a Tunnel nearest to the obstruction, or in any other position where, owing to the formation of the Line, or to some other circumstance, the Engine-driver of an approaching train would be unable to obtain a good and distant view of the Signal, then the Signal must be exhibited at the end of the Tunnel farthest from the Crossover-road, or at such a distance over and above the prescribed distance of three-quarters of a mile as may be necessary to ensure the Engine-driver obtaining a good and distant view of such Signal.

229. (a) If the Speaking Telegraph or Telephone communication is available, the Station-master or other responsible officials at both ends of the obstructed Section must communicate with each other by telegraph or telephone, and agree as to who shall arrange for Pilot-working.

(b) It will generally be found most expeditous for the Station-master or other responsible official in advance of the obstruction to undertake the arrangements, as he will have the proper running Line clear on which the Pilotman with the Forms can make his first journey by train or lorry if either is available. Under no circumstances must a train or lorry be allowed to run over the Single Line in the *wrong direction* until the Pilotman holds upon his Form the signatures of the Signalman at each end of the Single Line Section, and also at any intermediate Signal-box.

(c) A sufficient number of Forms provided for the purpose of establishing Single Line Working must be filled up and signed by the Station-master or person arranging the Single Line Working. One of these, signed by the Pilotman, he must deliver, in the presence of the Pilotman, to the Signalman in charge of the Crossover-road at which the Single Line Working commences, one signed by the Signalman must be handed to the Pilotman who must also sign it, and the remainder must be conveyed by the Pilotman to the other end of the Section which has to be worked as a Single Line. On his way the Pilotman must verbally inform the persons in charge of Level Crossings, Platelayers and any other men at work on the Line, that Single Line Working is about to be commenced, and which Line will be used; he must also leave a copy of the Form (signed by himself) with the person in charge of any intermediate Signal-box or Station then open between the points between which Single Line Working is about to be put into operation, and each of such persons must sign the Form held by the Pilotman. On his arrival at the other end of the Single Line Section the Pilotman must deliver a copy (signed by himself) to the Station-master or person in charge, and another (also signed by himself) to the Signalman on duty, each of whom must also sign the Form held by the Pilotman. Trains may then be allowed to pass to and fro on the Single Line, by the permission and under the control of the Pilotman.

(d.) When a Station-master himself acts as Pilotman he must also address and give a copy of the Form to the person he leaves in charge of his Station.

(e) Should any intermediate Signal-box or Station be opened after Single Line Working has been commenced, the Pilotman must, as soon as practicable, advise the person in charge of such Signal-box or Station that Single Line Working is in operation, and obtain his signature on the Form in the usual way. He must also hand to the Signalman or Station-master a copy of the Single Line Working Form.

(f) All telegraph or telephone messages sent or received in connection with the arrangements for working Single Line must be written on the usual message forms, and telephone messages must be repeated back by the receiving Station, copies of the messages being afterwards forwarded to the Superintendent.

230. (a) When Single Line has to be worked, and it is necessary to suspend Block Telegraph Working, this must be done only by the person who arranges the Single Line Working, by an order in writing on the Single Line Working Form, but in foggy weather, or during falling snow, or when a Tunnel intervenes, or the gradients are heavy on the Section of the Line where the traffic has to be worked on a Single Line, Block Telegraph Working must be maintained on such Section, the Up trains being signalled on the Up Line Block Telegraph Circuit, and the Down trains on the Down Line Block Telegraph Circuit, or the Pilotman must accompany every train passing over the Single Line.

231. (a) No train must be allowed to enter upon the Single Line without the Engine-driver and Guard or Guards having first been informed by the Pilotman that Single Line is being worked, and the points between which it is in operation.

232. (a) The Signalman at each end of the Single Line must know the man appointed as Pilotman, and must keep at Danger the Signals applicable to trains entering upon the Single Line until both Lines are safe, and the ordinary working of the traffic is resumed; but Engine-drivers may pass the Signals at Danger when so instructed by the Pilotman.

(c) When Block Telegraph Working is maintained the Pilotman must obtain the permission of the Signalman before allowing a train to enter upon the Single Line.

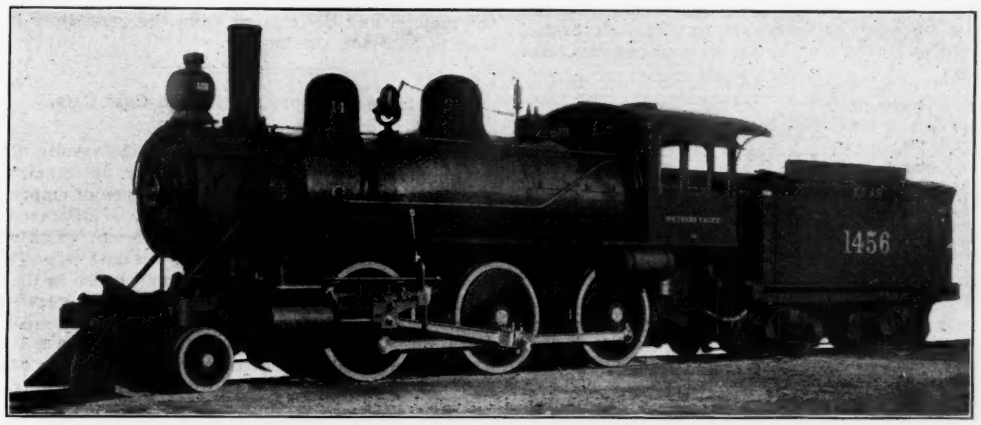
238. (a) Should the Pilotman give up the working to another, the name of the second Pilotman must be substituted on new Forms, to be held by the Signalmen at both ends of the Single Line, and by the men at any intermediate place; but this can only be done by the person who arranged the Single Line Working, and he, on doing so, must collect and retain the Forms previously issued.

(b) After one Pilotman has been relieved by another, the Pilotman who has been relieved must not ride upon any engine until he resumes duty as Pilotman.

239. (a) When the Line is clear, and before ordinary working is resumed, all Forms which have been issued for the Single Line Working must be collected by the Pilotman and afterwards sent to the Superintendent.

(b) The Pilotman must accompany the first train passing over the Line on which the obstruction existed.

In addition to the paragraphs quoted above the chapter contains rules for liberating the block telegraph indicator when it is left in the wrong position by the train which has caused the obstruction; for maintaining a space interval when block working is suspended; requiring fixed signals to be continued in force at intermediate boxes; providing for single track working on both sides of an obstruction when both tracks are blocked; for posting flagmen both sides of the obstruction; for transferring passengers when necessary; for single line working through, between crossovers, when one of two obstructed tracks has been cleared; regulating the speed of trains; requiring special attention to trailing point switches which become facing point; requiring special attention to "catch points" (derailing switches for runaway cars on steep grades); and prescribing procedure when signalmen are changed during the time single line working is in operation.



Cooke Locomotive for the Southern Pacific.

A Cooke Locomotive for the Southern Pacific.

The engraving from a photograph shows a mogul engine built by the Cooke Locomotive & Machine Co. for the Southern Pacific Ry. This is one of a lot of 26 built from the designs of the Southern Pacific. It is also exactly like five which the Cooke works are building for the Mexican International. The descriptive specification follows.

Mogul for the Southern Pacific.—Cooke Locomotive & Machine Co.

Gauge	4 ft. 8½ ins.
Total weight in working order	143,000 lbs.
" " on drivers	124,000 lbs.
Loaded weight of tender	94,000 lbs.
Total wheel base of engine	23 ft. 3 in.
Driving wheel base	15 ft. 2 in.
Wheel base of engine and tender	49 ft. 1 in.
Cylinder	Simple
"	20 in. dia. 28 in. stroke
Driving wheels	63 in. dia.
Engine truck wheels	30½ in. dia.
Driving axle journal	9 in. dia. x 11¾ in.
Engine truck axle journal	6 in. dia. x 9⅛ in.
Boiler, type	Extended wagon top, rad. stayed
" working pressure	190 lbs.
" dia. first course	62¼ in.
" fire box length	108⅛ in.
" " " width	40¼ in.
" style of grate	Rocking finger
" tubes, number	310
" " dia. and length	2 ft. x 12 in.
" thickness of shell	⅝ in.
" heating surface tubes	1,933 sq. ft.
" " " fire box	168 " "
" " " total	2,101 " "
" grate surface	30.22 in.
Slide valve	American balanced with Allen parts
" " travel	6 in.
Steam ports	18 in. x 1¾ in.
Exhaust	18 in. x 3 in.
Lap	1 in. Outside ⅜ in. inside
Exhaust pipe	High, single nozzle
Smoke box	Extended
" " netting	S. P. style, 7 mesh
Centre of boiler from rail	8 ft.
Top of stack " "	15 in. x 1½ in.

Tender.

Frame	10 in. Steel channels
Truck style	Diamond, steel bolsters
" wheel	33 in.
axle journal	5 in. dia. x 9 in. long
Tank water capacity	4,500 gallons
" coal "	10 tons

Special Fittings.

Brakes, Westinghouse on drivers, tender and for train. Sweeney brake attachment; couplers, California; sander, Leach double; springs, French; headlight, Dressel; injector, Nathan; valves, two 3-in. Consolidated, encased.

The American Railway Association.

At the Detroit meeting on April 12 the Committee on the Metric System presented a report which says, in part:

A report recently made to the British Parliament by the Board of Trade says that traders must "adapt themselves more to the requirements of their customers in foreign countries in order to retain their hold on existing markets, and to get a footing on fresh ones." One method is to adopt the metric system in calculation of weight, cost, etc. The Consul at Naples says: "It seems absurd that the first commercial nation in the world should measure their horses by hands and their dogs by inches, their cloth by ells and their calico by yards; that such impossible numbers should come into their square measure as 30¼ and 4840, and in their measure of solidity as 1728. And the weights are worse still. All goods for sale on the Continent should be marked in Metres and Kilogs, and all catalogues sent to the Continent should be in a language which is understood by the people of the country." A large amount of ironwork for bridges in Norway has been ordered from Antwerp. The contractors would gladly have placed the order in England, but have lately gone over to order all their iron from the Continent because they cannot get English makers to supply the work according to the metric system, and it is too complicated for them to work it all out into English measurement, feet and inches.

In Cuba and Porto Rico the metric system is employed and unlikely to be disturbed. Some of the leading American manufacturers are introducing the metric weights and measures in their circulars in connection with tables of dimensions and price-lists.

The Committee on Safety Appliances gives the following statistics of automatic couplers, air brakes and power brakes now in use on roads of the Association:

	January 1, 1898.	January 1, 1899.
Number of roads	196	182
Freight cars in service	1,110,045	1,168,810
Fitted with air brakes	460,005	617,234
Fitted with standard automatic couplers	674,675	898,281
Engines in service	32,771	32,882
Equipped with power brakes	29,827	31,034

Comparative Table.

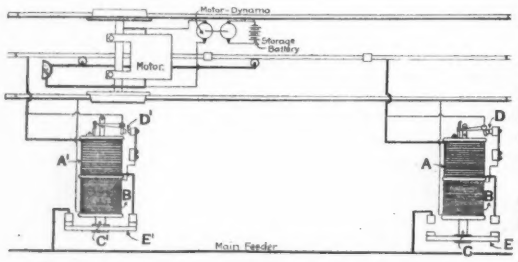
Date.	Total Number of Cars Reported.	Per cent. Fitted with Automatic Couplers.	Per cent. Fitted with Air Brakes.
January 1, 1897	1,054,815	49.1	36.6
July 1, 1897	1,054,022	54 4	38.8
January 1, 1898	1,110,045	60.8	41.4
July 1, 1898	1,113,745	70.4	46.9
January 1, 1899	1,168,810	76.9	52.8

On January 1, 1899, the roads reporting had under contract or construction 32,614 new freight cars, all to be fitted with automatic couplers and air brakes.

The Murphy Safety Third Rail Electric Road.

There has just been completed at Manhattan Beach a road about one-third of a mile in length worked on the Murphy third rail system. This system provides a surface connection by means of a third rail between the track rails. The sections of the third rail directly under the car are electrified and the other sections in the third rail are dead.

Its method of working is simple and may be shown by the accompanying diagram. Each sectional rail is connected to a solonoid switch, which has two windings, one of low resistance wound with coarse wire, through which passes the entire current for



Connections on Murphy Third Rail Electric Road.

running the motor, and another of high resistance wound with fine wire. The former, marked A and A′ on the diagram, is normally open, and the latter, marked B and B′, is normally closed, connecting its circuit between the sectional rails and the ground.

Assume a car in the position shown in the illustration. The motorman turns the controller and thereby makes connection with a small rotary converter which is driven by 10 cells of a storage battery on the car. This current is sent through the coil B′ and the armature E′ is drawn up as shown in the drawing, connecting the main feeder wire with the wire leading to the motor. At the same time the contact D′ is broken, thus disconnecting the storage battery current from the coil of fine wire winding.

When the car leaves the section there is no longer a current passing through the switch feeding it, and the core armature (B and B′) falls, first breaking the circuit between the feeder and the sectional rail, and second, restoring the circuit from the sectional rail through the fine wire to the earth. This condition is shown by the switch to the right in the cut. The switch is then ready for the next car. The car being thus started, the motor dynamo is no longer needed to operate the switches because the car is provided with two sets of shoes which are connected together and placed sufficiently far apart to span the distance from section to section. The forward shoe as it impinges on a section, subjects it to the full line potential, drawing its source of current from the rail preceding, for the main feeder has already been connected thereto in the manner just described. Once started, therefore, the car becomes independent of the motor dynamo, for it uses the power house current to operate the switches. From the above it may be noted that a switch is required for each rail section. These switches are placed in boxes either beside or under the track. The sections, however, may be made any desired length; but for city use it would be necessary to limit their length so as to make it impossible for anyone to come in contact with a live section. When the car is at a standstill no current passes through the rails.

The rotary converter which is used is started by the current from the storage battery and transforms the battery current of a low voltage to a sufficient high voltage to furnish light for the car. The converter, however, is changed to a generator as soon as the current from the third rail is paassed through the motors, and the current from the generators is used in charging the battery.

Resistance of Empty and Loaded Coal Cars.

In our issue of March 24 appeared the results of some dynamometer tests which brought out certain important relations between the resistance of empty and loaded freight cars. That there is a difference in the resistance per ton for cars of different weights has been known in a general way, but just what it amounts to or to what extent it should figure in the tonnage rating has been largely a matter of guesswork.

The difference for empty and loaded coal cars is being investigated by a great railroad, the name of which we cannot make public, and while the results thus far obtained are simply suggestive, nevertheless they indicate that there is a large percentage of difference. Although the names of the engineers who have made the tests given below cannot be given, the reader may be assured that the tests were carefully made and are probably as reliable as such records can be. While these results confirm in a general way the conclusions drawn in the article of March 24, it would be hazardous to draw general conclusions from results that are deduced from records subject to the many errors common to such work.

In the tests on coal cars, it was found that the best average value that could be given for heavily loaded coal cars was four pounds per ton (2,000 lbs.) at an average speed of about 12 miles an hour. For empty cars the corresponding value was 80% greater, or 7.2 lbs. per ton.

The normal resistance of the train on which records were taken should not fall below 4 lbs. per ton at very slow speeds, or rise above 20⅔ lbs. per ton at 100 miles an hour, and 10 lbs. per ton at 60 miles an hour. It was found, however, that at some slow speeds at starting, the resistance figured below four and at some speeds near 60 miles an hour, as high as 12.6 lbs., but the conditions were not considered to be normal and such results were not included.

For instance, a resistance calculated at a very slow starting speed, when the correction that had to be made for acceleration was about 10 times the resistance sought, and when the journals were warmed up to the temperature due to a much higher speed and, therefore, in abnormally good condition for a slow speed, it is not surprising that the level tangent resistance found was low. On the other hand, at 31 miles an hour, on a level tangent on a bridge, though the correction for acceleration was approximately ⅔ of the total resistance, the remainder for level tangent was 9.2 lbs., but in this case the journals were not yet warmed up and, therefore, the journal resistance was higher than normal, and there was doubtless an additional wind resistance to account for it, as well as the fact that the track on the bridge is not as firm as ballasted track. The level tangent resistance of 12.6 lbs. above referred to, includes a high wind resistance, as shown by finding a less resistance (10.3 lbs.) over a two degree curve immediately ahead, and a still further reduced resistance (9.6 lbs.) on the tangent next ahead, at about the same though somewhat less speed. Another similar case also confirms this.

The average speed for eight eastbound trips with a train of full-loaded coal cars, was 15.1 miles an hour and the corresponding resistance in pounds per ton for the entire run, averages 5.16, which includes the curve resistance, whatever that may have been, and 1.82 lbs. added to correct for the assistance of the average down grade a part of the distance, the actual resistance being only 3.34 lbs. per ton.

The corresponding figures for trains of empty coal cars westbound, being also the average of eight trips (115 miles each) are 14.0 miles an hour and 9.17 lbs. per ton.

The difference between these two resistances, 5.16 and 9.17 for loaded and empty cars, amounts to 78 per cent. of the former; that is, the resistance of empty cars according to these averages is, 78 per cent. more per ton than of loaded cars.

The level tangent resistance given for empty cars in Table I. is believed to be too high, probably due to head winds and the fact that both were measured at a place about 1½ miles from the starting point, and consequently the journal friction was higher than would be after a few miles further continuous running.

If the average figures, 5.16 and 9.17 for the entire run were to be corrected for curve resistance, the per cent. of difference between loaded and empty cars, would probably be increased rather than diminished. If, for instance, we assume that the curve correction to be subtracted is 0.25 for loaded cars and 0.30 for empty cars, the per cent. of difference would be 81 instead of 78.

It is doubtful if a variation in weight of train (by adding or taking off cars from a train of cars of the same class and weight), affects the resistance per ton, except as may be due to air resistance, which is probably the main cause for an increase in resistance when the speed increases. In fact, as far as journal friction is shown by the oil machine, its amount is less the higher the speed, provided the speeds are maintained constant a sufficient time to warm up (or cool off) the journal, to the temperature, which would correspond to the given higher (or lower) speed. It is only when the speed is suddenly reduced from a long-maintained higher speed that the journal friction is less at slower speed than at the higher, or only when the speed is suddenly increased from a long-maintained slower speed that the journal friction is greater at higher than at slower speed. Abnormally low journal friction will not continue lower than at higher speed if the slower speed is maintained after the sudden reduction in speed, because the journal gradually cools off to the temperature normal at the slower speed; nor will an abnormally high journal friction due to a sudden increase in speed continue higher than at the slower speed, if the higher speed is maintained, for the contrary reason. This range in the amount of journal friction is probably greater in an oil ma-

Table 1.—Data for Eight-Wheel Coal Cars with 33 In. Wheels; 4 In. x 8 In. Journals.

	Loaded Cars. A			Loaded Cars. B			Empty Cars. C	
Speed, m. p. h	10.4	7.48	7.42	17.5	14.66	15.1	12.93	12.58
Wt. of train, tons	2,642	2,272	1,902	2,263	2,644	2,281	1,044	989
Number of cars	65	54	46	56	67	57	90	90
Length of train, ft	1,863	1,508	1,350	1,537	1,875	1,565	2,660	2,570
Temp., deg. Fah	60	28	25	51	45	32	69	60
Average lading, lbs	56,660	58,935	57,800	56,120	55,230	56,180	.....	.....
Average weight of car	23,820	24,240	24,120	23,770	22,920	22,940	22,620	21,400
Average wt. car and lading	80,480	83,175	81,920	79,890	78,150	19,120	22,620	21,400
Resistance per ton	3.54	3.70	3.88	4.07	4.21	4.31	9.13	11.71

Weight of train includes dynamometer car and cabin car at 26.15 tons. Average weights per car do not include dynamometer car and cabin.

Table 2—Tests for journal friction, the basis being 100 revolutions per minute.

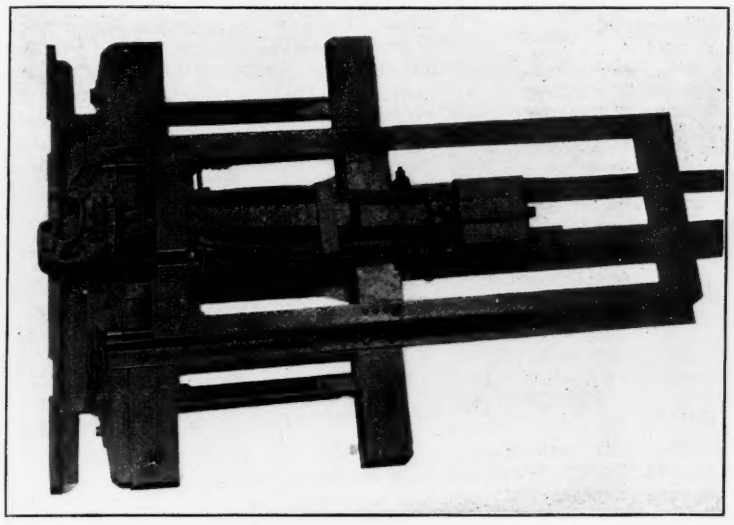
			Revolutions Per Minute. 100	200	300	600
Temperature Deg. F. journal:						
Max. start	81	=100%	92	99	88	
Average	100		108	121	147	
Min. stop	106		110	123	144	
Journal friction:						
Max. start	191	=100%	110	130	163	
10 minutes after	128	=100%	99	82	79	
Average	100		95	84	69	
Min. stop	86	=100%	94	82	73	
Dynamometer h. p.:						
Max. start	?		?	?	?	
10 minutes after	138%	=100%	197	246	474	
Average	100		190	251	413	
Min. stop	86	=100%	189	246	436	

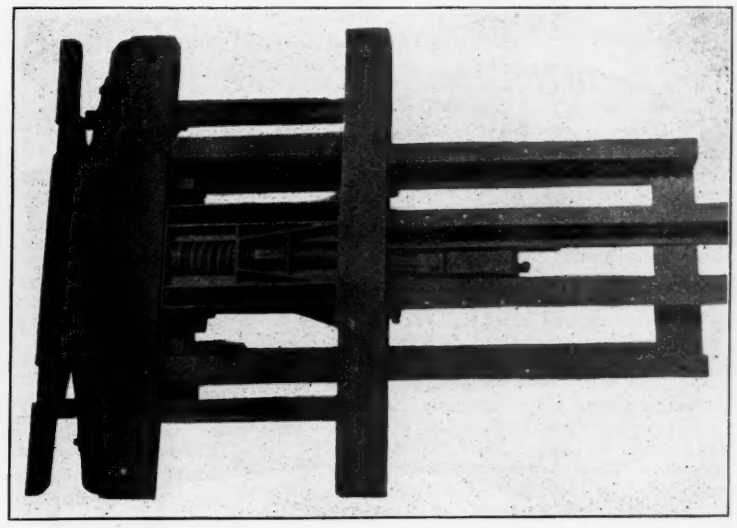
Note.—The max. starting friction (the maximum speed being quickly reached), is not very accurate, but is higher the higher the speed, when the journal is at the same temperature. In each case the reduction is very rapid, but for some time after starting the friction reading is very unsteady. The figures given for 10 minutes after the start are likewise not as reliable as for the average and at stop. The temperature of the journal at starting depended on the temperature of the room, and preferably should have been the same for all tests.

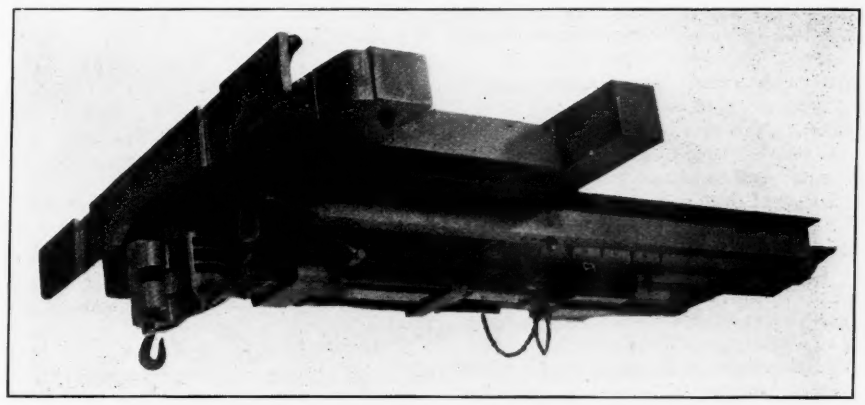
Note that while the friction decreases as the speed increases, the increase in temperature with increase in speed, is accompanied by an increase in power required as the speed increases.

chine test, because of the greater range in temperature in the machine test, which is more or less prevented in service, due to the fanning action of the air. In service, therefore, the journal friction is more nearly a constant and is higher than in a free-running machine test.

It is hardly safe to assume that the lubrication is much inferior to that in a machine test, as far as the journal friction goes, because the test on a machine shows that a lubricant made up of an emulsion of oil and powdered sand, gives surprisingly good results, both in low friction and low journal temperature. In confirmation of these statements on journal friction, the results of tests are given in Table 2 (not including, however, any with oil and sand as lubricant).







The Gould Steel Platform for all Cars in Passenger Service.

The Gould Steel Platform.

The Gould Coupler Co. has brought out a steel platform designed for cars running in passenger service and equally applicable to those having wide or narrow vestibules and to those without vestibules. The construction is shown in considerable detail in the engravings herewith.

It will be observed that Z-bars are used in this platform instead of I-beams, as in the Standard platform, which is now so widely used and so well-known. The designers claim that the Z-bar gives greater lateral stiffness than any other form of beam that would be practicable. Their official description says that "by turning the top flanges outward they form a natural brace laterally. The large flat parallel flanges give excellent surfaces for bolts and rivets, as well as large surfaces for all contact joints." There are three steel tie plates riveted to the under side of the flanges of the two central beams and to the top of the bottom flanges of the intermediate or side beams. These tie the main members, which are bolted to the platform and sills through the top flanges. The Z-bar construction also admits of a simple arrangement of the draft attachments, as shown in the engravings. The draw-gear is easily accessible. The through bolts holding the drawgear castings and steel beams to the car sills are not removed when removing the followers and draft spring. The bolts holding the drawbar guides pass through the drawbar castings and the lower flanges of the central beams. These hold the wrought iron drawbar guides in position while the pulling and buffing strains are taken by the lugs of the drawbar castings, which are made of malleable iron.

The drawbar castings take the wear of the followers, and protect the lower flanges, both on the bottom and edges of the central Z-beams, from the action of the followers.

The coupler carrier yoke is held laterally, by abutting against the lower flanges of the steel intermediate beams, relieving the yoke bolts of lateral strains. The steel beams are bolted to the end sill and the malleable iron buffing casting, bolted to the top of the center beams, and between the platform end sill and the car end sill, forms an abutment in direct line of the car framing. This relieves the bolts, holding the steel beams to the car framing, from buffing shocks.

This platform is adapted to the Gould continuous buffer and coupler without change, and where these devices are now used in wooden platforms such parts remain standard and are interchangeable with the parts used in the steel platform. The platform is no heavier than equivalent parts of the Gould standard wooden platform.

The efficiency of the steel platform construction has been well demonstrated and the Gould Company shows its customary business sagacity in entering this field.

Explosive Efficiency of Acetylene Gas and Air.

Mr. Frederick Grover, of Leeds, England, recently made some careful tests to determine the pressures and explosive efficiency of different mixtures of air and acetylene gas. These results have been printed in pamphlet form and copyrighted, but permission has been secured from Mr. Grover for the reproduction of the accompanying diagrams.

The experiments were carried out in the following way: A known volume of acetylene gas was admitted to a cylinder, and time allowed for its diffusion with the air therein. The mixture was ignited by electricity, and the pressure developed was measured by means of a Crosby indicator, the pencil of which worked upon a drum revolving at a known speed. In this way the proportions of acetylene and air, the time taken to complete the inflammation, and the pressures developed, were observed. The products of combustion were analyzed and the original mixtures checked. When any discrepancy was found, the quality of the original mixture was determined from the analysis of its products.

The first series of tests was made at atmospheric pressure, and it was found that the inflammation was complete with acetylene mixtures in from .1 to .018 of a second, whereas with coal gas the times observed that the same mixtures were .5 to .25 of a second. Fifteen to 1 is the weakest mixture of coal gas that can be exploded at atmospheric pressure, but with acetylene the limit is 18 to 1. The maximum pressure recorded was with a mixture of 7 to 1. Subsequent experiments with the mixtures at more than one atmosphere showed that the true mixture to give a maximum pressure is nearer 11 to 1.

The results of tests at atmospheric pressure were followed by tests as given in Figs. 1 and 2 for higher pressures. These probably need no explanation. Some of the actual explosion diagrams are shown in Figs. 3, 4 and 5. In reference to Figs. 4 and 5, it will be noticed that the rising pressure curves of the stronger mixtures are wavy and irregular. These irregularities have been accounted for by some writers to the effect of dissociation, but Mr. Grover concludes that this irregularity is due to the friction of the indicator. The following is taken from the author's pamphlet:

> It has been thought that great difficulty would be experienced in working a motor on acetylene gas on account of the slow diffusion of the gas with the air. The author experienced less trouble with the ignition of acetylene than with coal gas, when the same time is allowed for the diffusion of each. He therefore anticipates no difficulties in the application of acetylene to motors. It has also been thought that incomplete combustion would lead to a rapid deposit of carbon. After each explosion, when the products of combustion were being discharged from the cylinder, a piece of white paper was placed in front of the small pipe from which the products were escaping at a high velocity. This paper was perfectly clean after all the gases had been discharged from the cylinder. This would certainly not have been the case if a large deposit of carbon took place. There is no doubt that with incomplete combustion, occasioned by working with too strong mixtures, there would be a serious deposit. The large excess of oxygen with which it is found possible to explode the gas to advantage is a guarantee that no serious deposit in the cylinder is likely to be met with.

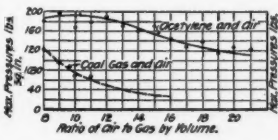


Fig. 1.

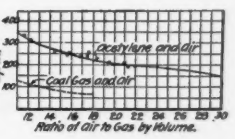


Fig. 2.

Maximum Pressures Recorded When Exploded at Two and Three Atmospheres Initial Pressure.

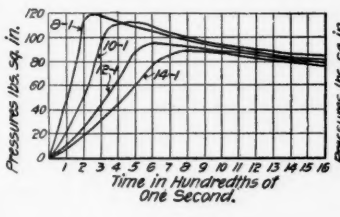


Fig. 3.

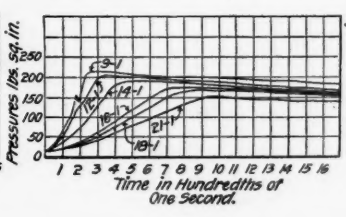


Fig. 4.

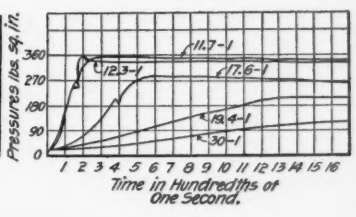


Fig. 5.

Explosion Diagrams of Acetylene and Air, Ignited at Different Pressures.

The efficiency of acetylene motors should be higher than that of any heat motor; and the author is of the opinion that this will ultimately reach 35 per cent., chiefly by increasing the speed of revolution. But taking a thermal efficiency of 30 per cent., the consumption of gas will be 6.1 cu. ft. per horse power hour. Taking the present price of acetylene at £20 per ton, it is evident that the cost of running a motor on acetylene is 2.6 pence per horse power hour. Thus the cost is at present prohibitive of the adoption of this gas in large power stations, but the convenience of the method of generation of the gas renders it of the greatest value for propelling light vehicles.

RAILROAD GAZETTE

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EDITORIAL ANNOUNCEMENTS.

Contributions.—*Subscribers and others will materially assist us in making our news accurate and complete if they will send us early information of events which take place under their observation, such as changes in railroad officers, organizations and changes of companies in their management, particulars as to the business of the letting, progress and completion of contracts for new works or important improvements of old ones, experiments in the construction of roads and machinery and railroads, and suggestions as to its improvement. Discussion of subjects pertaining to* ALL DEPARTMENTS *of railroad business by men practically acquainted with them are especially desired. Officers will oblige us by forwarding early copies of notices of meetings, elections, appointments, and especially annual reports, some notice of all of which will be published.*

Advertisements.—*We wish it distinctly understood that we will entertain no proposition to publish anything in this journal for pay,* EXCEPT IN THE ADVERTISING COLUMNS. *We give in our editorial columns* OUR OWN *opinions, and those only, and in our news columns present only such matter as we consider interesting and important to our readers. Those who wish to recommend their inventions, machinery, supplies, financial schemes, etc., to our readers, can do so fully in our advertising columns, but it is useless to ask us to recommend them editorially either for money or in consideration of advertising patronage.*

In its issue of April 8 "The Chronicle" (New York) carries further its compilation of the amounts of new securities brought out by the various so-called "combines" in the first quarter of this year The total is $1,526,325,000, or, including $35,000,000 increase in the stock of the American Tobacco Co. and $25,000,000 increase in the stock of the Continental Tobacco Co., the amount foots up to $1,586,-325,000. In making up the table "The Chronicle" has included only such new incorporations as represent the amalgamation of two or more concerns or businesses, or which aim to monopolize the field that they occupy. Companies to carry out new ventures are not included, nor are mere changes of form of existing companies from partnerships to incorporations; for instance, the Park Steel Co., with $10,000,-000 capital, has not been included, or the White Motor Wagon Co., likewise with $10,000,000 capital, or the National Cash Register Co., with $5,000,000, and so on. Furthermore, railroad companies or consolidations of street railroad and traction companies are not included in the list; nor does it include many schemes which are not likely to be carried through, such, for instance, as the American Brass Co., with $20,000,000 capital. Finally, no company has been included with an aggregate capital of less than a million dollars. But with these rigid lines of exclusion the new securities brought out by "combines" have been at the rate of over $500,000,000 a month. It is interesting to notice in the table that the common stock is $922,000,000, the preferred stock $513,-000,000 and the bonds $91,000,000. We see, also, that out of something like 67 concerns here tabulated 29 are issuing cumulative preferred stock, and in 10 cases the preferred is non-cumulative. Nine of the companies have no preferred stock and there are a number more concerning which information as to whether or not preferred stock was to be issued could not be obtained. Looking at these facts alone it is apparent that the chances of dividends on the common stock are somewhat remote.

The general restoration of freight rates, which the Trunk Line presidents made at or previous to their meeting in Washington in January, as a means (and the only available means) of purging themselves of contempt, so that they should be fit to stand in the presence of the commission, aimed at two objects; the first, to make rates public, and the second, to make them remunerative. And, as we recently had occasion to remark, it may be a favorable outcome if we can secure one of these two results. If it is impossible to avoid undue reductions of rates it is in some degree satisfactory to have the reductions made openly. Half a loaf is better than no bread. For about three months rates have been so well maintained that everybody has been congratulating everybody else on the enjoyment of the whole loaf; but the Chicago papers now report disturbances in eastbound rates on export grain, and the charm is broken. It appears, in fact, to have been broken a month ago, though the fact did not leak out. As contracts on large shipments of export grain are almost invariably made a considerable time in advance, we must assume that the reductions now reported were actually ordered early in March. One full month's record of business (February) seems to have been enough to knock some president off his balance, so that he could not wait for a second month's report before resorting to the old and familiar self-bleeding "war" measures. The Chicago reports, summarized, say:

> Last week there were 1,000,000 bushels of corn contracted for here and at the Mississippi River for shipment to Baltimore, most of it being for Parr & Co. To give employment to their idle cars of which they were getting too many, and to enable exporters at that port to fill a number of expiring ocean contracts, the roads have adopted a new plan, which they announce will be pursued in the future. Instead of cutting rates on the quiet, they put in a new tariff, and made it open by filing it with the Interstate Commerce Commission. The Pennsylvania and the Baltimore & Ohio Southwestern reduced the export rate on corn from East St. Louis to Baltimore from 12 cents to 10½ cents. The wheat rate was also dropped from 18½ cents to the same as corn. The 10½ cent rate has also been put in from all Mississippi River crossings and applies by way of Chicago, Peoria and Beardstown. The low export rate was made to meet Gulf competition and to meet any rate that might be made in the near future on the lakes. The rate to Baltimore from the river is 6.90 cents a bushel, and to New York 7.2 cents. This is about as low as by lake and rail.

The reporters conjecture that the "Gulf competition" exists chiefly in the minds of the men that made the reductions. And as for the competition of the lakes, a hundred lake vessels would probably have less effect on the freight solicitor at East St. Louis than a single one of those "expiring ocean contracts." The real cause of the reductions is, no doubt, the same as has operated in similar circumstances for several years, that ocean contracts in plenty have been arranged to "expire" at the right time to stimulate the eastbound grain movement whenever the market conditions tend to diminish shipments. And if we supplement the Chicago despatches by accounts printed in other quarters, we shall find that no exclusive glory belongs to Baltimore in this matter; Newport News comes in for its full share. Indeed, one dispatch indicates that the President of the Newport News line, the Chesapeake & Ohio, was the first to cast loose from the agreement made at Washington. The Chesapeake & Ohio has a large number of ships, the contracts for which probably "expire" pretty frequently when export shipments begin to fall off.

The "publicity" of these reduced export tariffs seems to be of a somewhat doubtful quality. The first that is heard of them appears to be when some one discovers at Washington a special tariff from one particular point in the west to one point in Europe, on one commodity; and the chances are that by the time the tariff is discovered it has expired by its own limitation, like the celebrated "fresh" fish that the general passenger agent bought. The description of the "midnight tariffs" that were issued by certain Western roads a few years ago would appear to fit these export tariffs exactly. The ships do not pass in the night, but the bills of lading do; or, at least, the competing freight solicitor who wishes to know the rates that are named in them must get up very early in the morning. When a tariff, expiring three days after it goes into effect, and showing an inland proportion of, say, seven cents per 100 lbs., from the Mississippi River to the seaboard, is followed by a similar one, soon after, showing a rail proportion perhaps twice as high, competing roads may well conclude that if they are to keep well posted as to what is going on they had better have an agent pretty close to Secretary Moseley's elbow when he opens his mail. As the recent slackening of the export demand promises to keep both rail and ocean rates disturbed for some time there would seem to be a good opportunity for one of the Interstate Commerce Commissioners to give the public a special report—or perhaps a magazine article—on the legal and practical aspects of the question of publicity of freight rates. He will have ample material to work on.

The Publications of the American Society of Civil Engineers.

The March issue of the Proceedings of the American Society of Civil Engineers contains two or three official matters of unusual interest. The most important of these is a statement of new rules and policy adopted by the Board of Direction with regard to the publication of papers and discussions.

No formal papers will be especially presented at the Annual Convention. Instead of this, discussion will be asked for, not only at the Convention, but also at the Annual Meeting, on all papers that have been published in the Proceedings during the six months before each of these general meetings. Special subjects of engineering interest may also be presented for discussion at these meetings, being brought forward after due notice and in due form, provision for which is made in the rules. This seems to be a thoroughly good change in procedure.

The Board states briefly its reasons far making this change. First, there has been a notion in the Society that for one reason or another it was more advantageous to the author to present his paper at the Convention. The result of this has been that papers have been withheld until about the time of the Convention. This diminishes the number of papers presented in the months just preceding, and as a further consequence of this the discussion brought out by advance publication is curtailed. Another reason for the change is that experience has shown that papers presented at the conventions are not discussed more, but are actually discussed less than papers presented at other meetings, and anybody who has attended the conventions will understand why this must be so; we need not go into the reasons. Further, it is believed that throwing open for discussion at the Convention and at the Annual Meeting, the papers presented during the preceding six months and providing in addition timely topics for informal discussion will add life and interest to the general meetings. All of this seems very probable and it is in the direction of liberalizing the Society and extending its usefulness.

This statement concerning papers and the conventions is followed, in the same issue of the Proceedings, by general rules and editorial rules adopted by the Board, to govern the publication of papers, discussions and correspondence. Here we find that papers accepted for publication are to be promptly printed in the Proceedings in advance of the date set for their presentation to the Society. This, as the reader knows, has been done for a good while, with excellent results. Now it has been decided further that correspondence on any paper, if received early enough, shall be presented at the meeting at which the paper is presented and then printed as soon as possible in the Proceedings. Furthermore, oral discussions will be so printed, and thus the paper, the correspondence and the discussions will all have the advantage of preliminary presentation to the Society at large before they get finally into the Transactions. This again seems to be a capital arrangement and it will be surprising if it does not add considerably to the interest of the papers and discussions, and it will probably increase the value of the permanent volumes of the Transactions.

The editorial rules seem to be excellent, with perhaps one exception. It is specified that in all papers, discussions and correspondence for the press the third person shall be used. The contributor of a paper shall be referred to as "the author," a correspondent as "the writer," and one who contributes to the verbal discussion as "the speaker." This probably means that the contributor of the paper shall also speak of himself in the body of that paper as the author. This restriction seems almost absurd. If the writer of a paper says "the author" instead of saying "I," he gains nothing and loses much. He loses in definiteness and directness, and he loses also in vigor of expression. The notion that it is less egotistical to say "the author" is wrong. The greatest egotists of our acquaintance use just that locution. The use of the first person singular is entirely consistent with modesty and good taste, and is more direct and simple.

Of course in the highest form of literature we expect to find neither of these expressions, nor even in the second class. Shakespeare, Milton and the Apostles never found it necessary to say "I" or "the author," and yet they contrived to express themselves with clearness and vigor. St. Paul, a great gentleman as well as a great writer, says "I," but he never says "the author." But if a man has not ingenuity enough to get around this difficulty it is better that he should use "I."

The Board also specifies that "all redundant matter, interrogations, which the text of a paper renders needless, and sarcastic forms of expression shall be excluded." Obviously so. In other words, a man should be able to write with his hand and not with his elbow before he is permitted to write in the Transactions of the American Society of Civil Engineers. Probably this rule is erected as a shelter behind which the Secretary and the Committee on Publications can put papers and discussions into tolerable English, which is not only a proper thing for them to do, but highly desirable. It seems a lit-

tle dangerous, however, for them to particularly specify sarcastic expressions. People's notions about sarcasm vary, and if the Publication Committee goes into the business of eliminating sarcasm it is liable to find itself in a peck of trouble.

Another important announcement is that it is proposed to publish hereafter in the Proceedings, month by month, a list of engineering articles which have appeared in various periodicals. In the March Proceedings is a list covering 19 periodicals for two months. It is not the purpose of the Committee to express any opinion as to the value of the articles but merely to give the members of the Society a convenient means of knowing what has been published. The list will be carried on if it seems to be of sufficient interest to the members of the Society to warrant the labor and expense.

Fatal Accidents to Trainmen in 1893 and 1897.

The Interstate Commerce Commission in its last annual report, a summary of which was given in the Railroad Gazette of January 20, page 38, stated that the number of employees killed on the railroads of the United States for the year ending June 30, 1897, was about a thousand less than in the year ending June 30, 1893; and an encouraging showing was also made of the diminution in the number of men killed and injured in coupling and uncoupling cars. The ratio of men killed, in this department of the service, to the number engaged in the work, has been reduced to one in about 600, from one in 324 in 1893. It was stated further that the records of similar accidents on the railroads of Great Britain showed the very much higher ratio of one to 350. We shall show later a possible error in this figure.

This improvement in the casualty record is very gratifying. In particular, that part of it which is due to the introduction of automatic freight car couplers, if it could be ascertained, should go on record as one of the tangible results of the long-continued efforts of the inventors and makers of couplers, and the members of the Master Car Builders' Association, and the enormous expenditures of the railroad companies. Those who worked for the enactment of the Federal law requiring the universal use of automatic couplers will not be grudged their share of the credit. And not the least part of the satisfaction to be found in the figures is the knowledge that the improvement thus far made is pretty sure to be followed by still better results, when the substitution of the new pattern for the old shall have been made complete.

But still there is need for a word of caution. We are not sure but the Commission over estimates the influence of the automatic coupler in these results. We do not need to tell our readers that we are not speaking against the M. C. B. coupler; we have labored too long and hard for it to be suspected of that; but the improved condition of the brakemen is due to several causes.

And in view of the well-known differences between English and American freight-car couplings and the conditions under which they are used, and of the marked differences in mortality shown in the records of the two countries in former years, the comparison with England also seems to be of doubtful accuracy. How much are we warranted in reading out of these figures?

Since the issuance of the report which we published on January 20, the Commission has given out its statistical tables of casualties and we reprint one table herewith. (Table No. 1):

Table 1.—Employees Killed and Injured in the United States in Coupling and Uncoupling Cars.

Year ending June 30.	Trainmen.			Switchmen, Flagmen and Watchmen.			Other Employees.		Number of trainmen employed, excepting enginemen and firemen, to one trainman—		Number of switchmen, flagmen and watchmen employed to one—	
	Number of employed on June 30, excepting enginemen and firemen.	Killed.	Injured.	Number employed on June 30.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.
1897	88,995	147	4,698	43,763	58	1,325	9	260	605	19	775	33
1896	90,263	157	6,457	44,266	58	1,686	14	314	575	14	763	26
1895	87 497	189	6,077	43,158	90	1 826	12	234	463	14	480	24
1894	88,240	181	5,539	43,219	63	1,492	7	209	488	16	686	29
1893	100,496	310	8,753	46,048	109	2.290	14	234	324	12	422	20
1892	94,774	253	7.766	42,892	115	2,252	10	301	375	12	373	19
1891	89,060	288	7,155	40 457	111	2 044	16	232	309	12	364	20
1890	85,247	265	6,073	37,669	75	1,528	29	241	322	14	502	25
Total		1,790	52,518		679	14,443	111	2,025				

In this summary, as in nearly all statistics in this field, there are numerous points on which it is impossible to get sufficient light to draw precise conclusions. The terms "switchman" and "flagman" are, no doubt, used to indicate different kinds of work on different railroads; on most American roads "switchmen" are yard brakemen; and although "flagman" is a term commonly used to designate the rear brakeman of a train, it probably includes, in the reports made to the Commission, chiefly attendants at highway crossings. Most "watchmen" have little or nothing to do in coupling cars. To more clearly set forth the facts given by the Commission, we have figured from them the following proportions and percentages:

Table 2.—Casualties Among Railroad Employees in the United States, Year Ending June 30.

	1897.	1893.
1. Employees in service, all classes	823,476	873,602
2. Decrease, per cent	6	
3. Employees killed, all classes, all causes	1,693	2,727
4. Decrease, per cent	37.9	
4a. Proportion, Item 3 to Item 1, one in	486	320
5. Employees injured	27,667	31,729
6. Trainmen in service, except enginemen and firemen	88,995	100 496
7. Trainmen killed in coupling accidents	147	310
8. Decrease, per cent.	52.4	
9 Killed, all classes, in coupling accidents	214	433
10 Decrease per cent.	50.6	
11. Proportion, Item 9 to Item 6, one in	415	232
12. Proportion trainmen killed (as in Table 1) one in.	605	324
13 Proportion injured (as in Table 1) one in	19	12

Perhaps the most significant fact shown by the statistics here given is the marked decrease in the total number of fatal accidents; that is, casualties from all causes, to employees of whatever class. The total of accidents in coupling has decreased 50.6 per cent., but all accidents, including these and all others, have decreased 37.9 per cent. The number of employees killed by overhead obstructions decreased, in the four years, 42.5 per cent.; in train accidents, 33.5 per cent.; at stations and highway crossings, 43.6 per cent. In view of these figures it can hardly be said that the whole of the 50 per cent. decrease in coupler accidents is due to the abolition of link and pin couplers.

The men at work on freight trains during the dull times after 1894 were, without doubt, of a higher average of intelligence, experience and carefulness than the men in the same service before the panic. When business fell off and the forces had to be reduced, the less efficient and careful men were weeded out, and for three or four years this improving process went on; this must have raised the average efficiency. We are not belittling the value of automatic couplers; only setting forth simple facts, which must be considered if we compare the figures of 1897 with those of years yet to come.

The Commission's comparison with the conditions in England must be based on some data other than those found in the Government records. The English records for the year ending December 31, 1897, show:

Table 3.—Casualties in Great Britain and Ireland, Year Ending Dec. 31, 1897.

1. Employees in service	465,112
2. Employees killed (1 in 822)	566
3. Guards (conductors and brakemen) in service	18,238
4. Employees (all classes) killed in coupling or uncoupling	19
5. Proportion of these to guards in service, one in	960

In the English reports, as in ours, the total number of trainmen reported includes those in both passenger and freight service. The only fair comparison which it seems possible to make (from the data given), between the conditions in the two countries, is that of items 3 and 4 in the English table, with numbers 6 and 9 in the table for this country. Taking this basis, it will be seen that the English record is more than twice as favorable as ours, instead of 42 per cent. less favorable, as was stated by the Interstate Commerce Commission. The English report does not give the coupling casualties to guards, separated from those to shunters or yard switchmen, but to enable one to make a comparison with the twelfth item of Table 2, this separation would have to be made.

The English records of casualties have been kept by the Board of Trade for many years, and comparisons of different years indicate that they are accurate and consistent. If there had been any serious error in the aggregate of deaths (whatever criticisms it may be proper to make of the injuries record) the public would undoubtedly have heard of it through the newspapers. As illustrating the conditions in England, we may note that an officer of the Midland, now in this country, tells a reporter that during the past year not a single person has been killed in coupling or uncoupling on his road, and only three seriously injured. The Midland works 1,368 miles, and owns 116,000 freight cars. In view of all the facts available, it would seem reasonable to accept the English Government records as correct.

February Accidents.

Our record of train accidents in February, given in this number, includes 80 collisions, 92 derailments and 7 other accidents, a total of 179 accidents, in which 41 persons were killed and 166 injured. The detailed list, printed on another page, contains accounts only of the more important of these accidents. All which caused no deaths or injuries to persons are omitted, except where the circumstances of the accident as reported make it of special interest.

These accidents are classified as follows:

Collisions.	Rear.	Butting.	Crossing and other.	Total.
Trains breaking in two	14	0	0	14
Misplaced switch	2	3	0	5
Failure to give or observe signal	1	1	1	3
Mistake in giving or understanding orders	0	7	0	7
Miscellaneous	7	2	7	16
Unexplained	14	6	15	35
Total	38	19	23	80

Derailments.			
Broken rail	6	Open draw	2
Defective bridge	1	Derailing switch	2
Defective switch	2	Landslide	7
Broken wheel	7	Snow	1
Broken axle	5	Snowslide	2
Broken truck	7	Washout	2
Failure of drawbar	2	Malicious obstruction	2
Misplaced switch	1	Accidental obstruction	1
Careless running	1	Unexplained	35
Bad switching	1		
Bad loading	1		92

Other Accidents.	
Boiler explosion	2
Broken side rod	1
Cars burned while running	1
Various breakages of rolling stock	2
Other causes	1
	7
Total number of accidents	179

A general classification shows:

	Collisions.	Derailments.	Other accid's.	Total.	P. c.
Defects of road	0	9	0	9	5
Defects of equipment	14	21	5	40	23
Negligence in operating	31	12	1	45	26
Unforeseen obstructions	0	15	0	15	8
Unexplained	35	35	0	70	38
Total	80	92	6	179	100

The number of trains involved is as follows:

	Collisions.	Derailments.	Other accid's.	Total.
Passenger	37	21	3	61
Freight and other	114	74	4	192
Total	151	95	7	253

The casualties may be divided as follows:

Killed.	Collisions.	Derailments.	Other accid's.	Total.
Employees	19	12	4	35
Passengers	0	2	0	2
Others	0	4	0	4
Total	19	18	4	41
Injured.				
Employees	50	58	10	118
Passengers	18	26	0	44
Others	0	4	0	4
Total	68	88	10	166

The casualties to passengers and employees, when divided according to classes of causes, appear as follows:

	Pass. Killed.	Pass. Injured.	Emp. Killed.	Emp. Injured.
Defects of road	1	12	0	8
Defects of equipment	1	3	5	8
Negligence in operating	0	19	21	66
Unforeseen obstructions and maliciousness	0	0	7	12
Unexplained	0	10	2	24
Total	2	44	35	118

Twenty-nine accidents caused the death of one or more persons each, and 44 caused injury but not death, leaving 106 (59 per cent. of the whole) which caused no personal injury deemed worthy of record.

The comparison with February of the previous five years shows:

	1899.	1898.	1897.	1896.	1895.	1894.
Collisions	80	76	44	34	43	37
Derailments	92	97	71	91	92	65
Other accidents	7	2	2	4	8	3
Total accidents	179	175	117	129	143	105
Employees killed	35	22	21	35	13	14
Others killed	6	9	3	2	5	1
Employees injured	118	58	40	54	75	45
Others injured	48	45	41	53	44	13
Passenger trains involved	61	53	38	51	72	38
Average per day:						
Accidents	6.39	6.25	4.17	4.45	5.11	3.75
Killed	1.46	0.96	0.86	1.28	0.64	0.54
Injured	5.86	3.68	2.89	3.69	4.25	2.07
Average per accident:						
Killed	0.23	0.15	0.20	0.29	0.12	0.14
Injured	0.93	0.59	0.69	0.83	0.83	0.55

Only two passengers were killed in the train accidents which are now reported for the month of February, and neither of the two accidents in question is classed as due to negligence in operating. The most serious passenger train accident of the month was the rear collision on the 13th at Gallagherville, Pa., during the great snowstorm, though, fortunately, the car which was most seriously crushed was nearly or quite empty. This collision is, in im-

portant features, like that at Colonia, N. J., in December, reported Feb. 3, p. 87, but there appears to have been no negligence on the part of the tower man. The case again shows how the use of the flagging system to supplement the block system may fail to afford the requisite protection. Whether or not the engineman's failure to see the flagman in this case was partly due to his dependence on getting all his signals through the medium of the fixed signals, is a question which probably can never be settled; but certainly it would not be strange if the habit of such dependence should gradually grow in the mind of an engineman constantly running under space-interval regulations. If the snow, which was flying in the air or which was stuck to the cab window, really prevented the runner from seeing the fixed signal, the case will again suggest the use of audible signals. With the wide cabs, now common, some locomotive runners are more cautious than formerly about putting their heads out of the window, so that in many cases a snowstorm is more troublesome than it used to be.

Another collision which is of interest as bearing on the relative merits of the space interval and time interval is that which occurred at Antonia, La., on the 7th. The butting collision at West Philadelphia, on the 24th, is also noticeable, though in this the questions raised have more to do with interlocking and electric locks than with block signaling.

The derailment at Adrian, Mich., on the 23rd, will be of interest to signal engineers and others who are undecided as to the proper distance that should intervene between a derailing switch and the point which it is intended to protect. If the circumstances of this collision could have been laid before the recent meeting of signal engineers at Philadelphia the subject would have been good for at least a five dollar bill for the stenographer. The derailment which appears in our account next after that at Adrian is also of interest to signalmen in a similar way. Another case of this kind, in which, however, the engineman appears to have been wide awake, was that at Grand Junction, Ia., on the 2d.

One of the causes contributing to a collision near San Simon, Ariz., on the 3rd was a sandstorm, which obscured the view of the enginemen. At Decatur, Ala., a collision was occasioned by another very unusual cause—unusual for that latitude—a blinding snowstorm. On the 15th there was a derailment near Prentice, Ill., which was not discovered by the men on the train until several hours after it occurred. This case has already been reported in the Railroad Gazette.

We have accounts of seven electric car accidents in February, in which 14 persons were injured, one of them fatally. At McKeesport, Pa., about two o'clock on the morning of Feb. 3, a freight train of the Baltimore & Ohio struck a wagon load of household goods at a crossing, and all of the six persons on the wagon were either killed or so severely injured that they never recovered consciousness.

The Prussian State Railroads.

This system consisted at the beginning of this year of 18,528 miles of main track. The program for the current year embraces additions amounting to 502 miles, which will run the total up to 19,030 miles at the beginning of 1900 A. D. These figures do not include 84 miles of narrow gage, nor do they cover a few miles worked separately. The system is at present divided into 21 divisions.

The annual report for last year shows the finances of the department as follows:

Gross earnings	$297,152,200
Expenses	211,324,350
Net earnings	$85,827,850

Based on these figures and other data available, with proper allowances for the planned increase in mileage and equipment, the estimate of the department for the ensuing year is as follows:

Passenger receipts	$86,327,500
Freight receipts	211,862,500
Other sources	21,790,450
Total gross earnings	$319,980,450

The expenses are estimated at $207,577,600, distributed as follows:

Personnel	$90,614,250
Relief funds	6,534,600
Fuel	11,929,000
Lubricants	1,957,100
Track material	27,002,000
Stationery and printing	1,219,000
Other material	3,161,150
Water, gas, electricity, etc.	1,760,000
Other items	63,400,500
Total	$207,577,600

The net earnings for the year will thus be $112,402,850, an increase above last year of $26,575,000.

The natural growth of traffic, together with territorial extensions, has caused corresponding increases in the rolling stock equipment, as will be seen by the following comparative statement:

Year.	Locomotives.	Pass Coaches.	Bagg. Equipt.	Freight Cars.
1898	11,602	21,039	5,457	252,194
1897	11,013	19,593	5,088	237,373
1896	10,929	18,809	4,838	225,386
1888	8,619	13,503	3,655	169,088

With the additions contemplated according to this year's program, the equipment will appear as follows:

	Number.	Total Cost.	
Locomotives	1,802	$8,793,760	$4,800
Passenger coaches	3,410	11,935,000	3,500
Baggage equipment	1,157	2,267,720	1,960
Freight cars	39,477	20,922,810	530
Total	45,846	$43,919,290	

The locomotive performance during the current year will, according to the department's estimate, amount to 247,000,000 engine-miles, including empty engines, also shifting service, the latter reckoned at 3.1 engine miles per hour.

The car performance is estimated to reach 7,610,000,000 car-axle-miles, including passenger and freight, as well as foreign cars.

The estimated cost for fuel and stores per 1,000 engine-miles is $62 and per 1,000 car-axle-miles $2.

Train Accidents in the United States in February.

COLLISIONS.

Rear.

1st, 3 a. m., on New York, Susquehanna & Western, at Two Bridges, N. J., the engine of a freight train standing at a tank was run into at the rear by the cars of its own train, which had become uncontrollable on a grade; the engineman was badly injured.

2d, 1 a. m., on Houston & Texas Central, near Calvert, Tex., a freight train ran into the rear of a preceding freight, wrecking the engine and caboose. The caboose took fire and was burned up. The fireman was injured. There was a dense fog at the time.

7th, on Baltimore & Ohio, at Indian Creek, Pa., a freight train ran into the rear of a preceding freight, making a bad wreck, which took fire and was partly burned up. The flagman in the caboose was killed.

12th, 11 p. m., on Philadelphia & Reading, near Lofty, Pa., a local freight train, with a passenger car at the rear, was run into at the rear by a following fast freight, and the passenger car and the 2 engines of the second train were wrecked and fell down a bank.

13th, 1 a. m., on New York, Ontario & Western, near South Unadilla, N. Y., a freight train with an engine at the rear, as well as at the front, broke in two near the front end, and the rear portion afterward ran into the forward one wrecking 2 cars. The conductor was killed.

13th, on Pennsylvania road, near Gallagherville, Pa., eastbound passenger train No. 4 (first section) which was standing at a water plug, was run into at the rear by second No. 4, and the two rear cars of the foremost train (a sleeping car and a private car), were badly damaged and afterwards destroyed by fire, presumably from the wrecked locomotive. There was a blinding snowstorm at the time. Second No. 4 was drawn by three engines. It ran past a block signal, set against it, at Thorndale, a mile west of the point of collision, and also disregarded the signal of the flagman of the first section, who was posted at the regulation distance back of his own train. The engineman of the foremost engine, one other engineman and one fireman were fatally injured, and 1 fireman and 3 passengers were slightly injured.

13th, on Erie road, near Sloatsburg, N. Y., one of the two engines drawing a passenger train broke loose from the rest of the train and, the engineman being unaware of the breakage, soon after stopped; the rest of the train came on and collided with this engine. The two enginemen were injured.

13th, on Brooklyn Elevated, at Cornelia street, Brooklyn, N. Y., a passenger train moving slowly was run into at the rear by a following passenger train and the second train was soon after run into at the rear by a third. One passenger was injured.

13th on Lehigh Valley, near Fairview, Pa., an engine which had been stopped, or nearly stopped, by a snowdrift, was run into at the rear by a following engine. A rupture of the boiler or a steam pipe allowed a large quantity of steam to escape, and three trainmen were badly scalded. There was a blinding snowstorm at the time.

18th, on Long Island road, at Bushwick Junction, N. Y., an eastbound passenger train, standing near the station, was run into at the rear by a following passenger train and one car was damaged. One passenger was injured. There was a dense fog at the time.

21st, on Missouri Pacific, at Auburn, Neb., a passenger train ran over a misplaced switch and into the rear of a freight train standing on the side track; the engineman was injured.

22d, on Georgia road, near Berzelia, Ga., an engine, carrying officers of the road, ran into the rear of a preceding freight, wrecking the caboose and 1 car. Three men were injured.

23d, on Wabash, at West Lebanon, Ind., a freight train ran into the rear of a preceding freight, wrecking the engine, caboose and several cars. The engineman was injured.

25th, on Louisville & Nashville, at Milldale, Ky., a passenger train standing at the station was run into at the rear by a following freight train; one trainman injured.

27th, on Philadelphia & Reading, near Pottsgrove, Pa., a freight train descending a grade broke in two and the rear portion afterward ran into the forward one, damaging 10 cars. The collision occurred on a bridge and the bridge was wrecked. Four cars fell into the creek.

And 23 others on 20 roads, involving 5 passenger and 30 freight and other trains.

Butting.

3d, on Southern Pacific, near San Simon, Ariz., butting collision between a freight train and a pay car train; 1 engineman and 1 fireman were killed and 1 engineman was injured. A blinding sandstorm was blowing at the time.

4th, 11 p. m., on Wisconsin Central, at Neenah Wis., butting collision between a passenger train and a freight, badly damaging both engines; 1 engineman and 1 fireman injured.

6th, on Chicago & Grand Trunk, at Imlay City, Mich., butting collision between westbound passenger train No. 1 and eastbound passenger train No. 6, badly damaging both engines. The engineman and 2 mail clerks of the westbound train were killed and the other engineman and 3 passengers were injured. The eastbound train was standing at the station, the expectation being that the westbound would take the side track.

7th, night, on St. Louis, Iron Mountain & Southern, near Antonia, La., butting collision between northbound passenger train No. 22 and a southbound freight. Both engines, the mail car, the express car and several freight cars were wrecked. The engineman and fireman of the freight were killed and four other trainmen were injured. The freight should have taken the side track at Howcott, having no orders against the passenger train, and it appears that the conductor had called the engineman's attention to this fact. The engineman was killed. His watch was found to be about 55 minutes slow, which probably accounts for his attempt to go beyond the meeting point. Howcott is in a thick forest and, the night being dark, the conductor passed the station without observing it.

12th, 4 a. m., on Pittsburgh, Fort Wayne & Chicago, at Fort Wayne, Ind., butting collision between a passenger train of the Grand Rapids & Indiana and an empty engine of the Fort Wayne road, badly damaging both engines; 2 trainmen injured. Fireman George Crabill had the firebox open at the time and was pitched into it. While his clothes were a sheet of flame he climbed back over the coal, took the cover off the tank and dived into the water, and, although badly burned about the arms, was not fatally injured.

12th, on Burlington, Cedar Rapids & Northern, at Ely, Ia., butting collision of freight trains; 1 brakeman killed and 2 other trainmen injured. It is said that the engineman of the southbound train, being deceived by a misleading signal, ran to the station, instead of stopping at the switch north of the station.

12th, on Cincinnati, New Orleans & Texas Pacific, at Rogers Gap, Ky., butting collision of freight trains, both running at a considerable speed. Both engines and 5 cars were wrecked. The men on the engines jumped off and one of them was injured.

12th, on Cincinnati, Hamilton & Dayton, near Troy, O., butting collision between a northbound passenger and a southbound freight train. The baggage and mail cars were badly damaged. The mail agent and 1 passenger were injured.

16th, on Philadelphia & Reading, at Mill Creek Junction, Pa., butting collision between an empty engine and a train carrying miners. Both engines were badly damaged and 2 employees were injured. It is said that the collision was due to a mistake in telegraphic orders.

18th, on Southern Railway, at Blooms, Va., butting collision between a northbound freight and a southbound empty engine, due, it is said, to the forgetfulness of the conductor of the freight, who overlooked a meeting order. One trainman was killed and another was injured.

18th, on New Orleans & Northeastern, near Hillsdale, Miss., butting collision between northbound passenger train No. 4 and a work train, badly damaging both engines. The engineman of the passenger train was injured. It is said that a station agent failed to deliver an order to the passenger train.

24th, 5 p. m., on Pennsylvania road, at 40th Street, Philadelphia, Pa., an eastbound passenger train ran over a misplaced switch and through a cross-over to the westbound track where it collided with a westbound passenger train. Both engines were badly damaged. One fireman was killed and 4 passengers and 4 employees were injured. It appears that there is a distant signal connected with the switch, but that the switch tender, who intended to throw the switch immediately after the passage of the eastbound train threw it just before the engine reached it.

And 7 others on 7 roads, involving 2 passenger and 12 freight and other trains.

Crossings and Miscellaneous.

2d, on Chicago & Northwestern, near Mankato, Minn., a passenger train moving backward collided with a freight of the Chicago, St. Paul, Minneapolis & Omaha at the crossing of that road. One passenger was injured.

10th, on Lake Erie & Western, at Muncie, Ind., collision of freight trains, badly damaging one engine. An engineman was injured.

11th, on Montana Union, near Butte, Mont., a switching freight train, moving at low speed, ran into the rear of another switching freight, and a platform car was wrecked. One brakeman was killed and another injured. It appears that at the point of collision trains usually run under control, looking out for each other. On the morning in question, which was very cold, the view along the track was obscured by a large cloud of steam which came from a small pond near the track, the water of which was warmed by steam from the engine of a factory.

12th, on Louisville & Nashville, at Decatur, Ala., collision of freight trains in the yard, badly damaging both engines. One engineman was injured. There was a blinding snowstorm at the time.

14th, on Chicago, Great Western, near Dyersville, Ia., collision between a passenger train and an empty engine, damaging both engines and three cars. Three passengers were slightly injured and the engineman and fireman were scalded.

16th, on Pennsylvania road, at Trenton Avenue and Somerset Street, Philadelphia, Pa., a train carrying 300 laborers collided with a switching engine, and both engines were badly damaged. The conductor of the workmen's train was killed and five other employees were injured.

18th, on Pennsylvania road, at Frazers, Pa., a passenger train entering the main line from the West Chester Branch was run into at the side by an eastbound passenger train on the main line. Two passenger cars were overturned. One passenger was injured.

18th, on Chicago & Northwestern, near Dixon, Ill., a passenger train ran into an empty engine. The fireman was killed and the engineman injured. It is said that the empty engine, having been reversed and deserted, ran some distance on the main track and finally fell into the ditch.

18th, on Pennsylvania road, near Lewistown, Pa., collision between a freight train and a switching engine, damaging both engines and wrecking two cars. One engineman was fatally injured.

18th, 11 p. m., on Philadelphia & Reading, at Pottsgrove, Pa., collision between a freight train and an empty engine running backwards. The tender of the empty engine was wrecked, but the engine itself broke loose from the tender and, having been deserted and reversed, ran five miles south on the main line to Mooresburg. At that place the operator, having been warned, turned the engine into a side track where it ran into and wrecked six freight cars.

27th, on Baltimore & Ohio, at Wilmington, Del., collision of switching freight trains, derailing several cars. A hotel near the track was badly damaged; engineman and fireman injured.

And 12 others on 12 roads, involving 3 passenger and 20 freight and other trains.

DERAILMENTS.

Defects of Road.

12th, on Southern Railway, near Juliette, Ga., a passenger train was derailed by a broken rail and the parlor car was overturned. Three passengers were injured.

22d, on Baltimore & Ohio, near Groves' Limekiln, Md., a passenger train was derailed by a broken rail and ran some distance on the ground, but was saved from serious wreck by falling against a snowbank. Three passengers were injured.

23d, on Union Pacific, at Weed, Wyo., passenger train No. 2 was derailed and the sleeping car, dining car and chair car were wrecked. The conductor and one passenger jumped off and were killed, and 6 passengers and 1 trainman were injured. It is said that the derailment was due to a defective switch-rail.

28th, on Illinois Central, near Sardis, Miss., a mixed train broke through a trestle bridge and 11 cars fell to the ravine below. The engine and 1 freight car passed over the bridge and 2 passenger cars were stopped before reaching it. Seven men in a bridge-repairing gang, riding on the train, were injured.

And 5 others on 5 roads, involving 2 passenger and 3 freight and other trains.

Defects of Equipment.

10th, on Chattanooga, Rome & Southern, near Chickamauga Park, Ga., a passenger train was derailed by the breaking of a wheel of the locomotive, and the engine was overturned. One passenger was killed and 4 trainmen and several passengers were injured.

13th, on Pittsburgh, Bessemer & Lake Erie, at Grove City, Pa., the engine and 6 cars of a freight train were derailed and wrecked by the breaking of a wheel of the engine. The engineman was killed and 2 other trainmen were injured.

15th, on Chicago & Alton, near Prentice, Ill., a car in a westbound freight train was derailed by the breaking of one of its wheels and fell into the ditch. The derailed car very quickly ran clear of the track and the drawbars in the adjoining cars, both front and rear, were uninjured. The train was soon stopped by the automatic application of the air brake, but by the time the trainman found the place where the trouble occurred the two parts of the train had been automatically coupled one to the other and the train went on to Roodhouse, 34 miles, before the loss of the derailed car was discovered.

21st, on West Shore, at Ridgefield Park, N. J., a freight train was derailed by the failure of a draw-bar, and a tramp was killed.

And 17 others on 15 roads, involving 2 passenger and 15 freight and other trains.

Negligence in Operating.

2d, 2 p. m., on Chicago & Northwestern, at Grand Junction, Ia., the fast mail train was derailed by the derailing switch, at the approach to the crossing of the Rock Island road, and the engine was overturned. The fireman was killed.

5th, on Peoria, Decatur & Evansville, at Olney, Ill., a passenger train was derailed at a misplaced switch and the engineman and fireman were injured, the former fatally.

11th, on Erie road, near Jersey City, N. J., the rear car in a passenger train was diverted to a crossover track by the premature throwing of a switch. The rear end of the car fell to the rails and in that position was dragged several hundred feet. One passenger was injured.

13th, on Chicago & Eastern Illinois, at Grant, Ind., a passenger train was derailed at a derailing switch and the cars fell down a bank. The engine was overturned. Four employees were injured.

23d, at Adrian, Mich., a freight train of the Wabash road was derailed by the derailing switch at the crossing of the Lake Shore & Michigan Southern and the engine and several cars ran some distance on the sleepers, the engine coming to a stop about 50 ft. beyond the crossing. The signalman was just giving the right of road to a passenger train of the Lake Shore, but succeeded in stopping it. The engineman of the freight is said to have been asleep.

24th, on Philadelphia, Wilmington & Baltimore, near Wilmington, Del., an eastbound freight train ran into the open draw of the bridge over the Brandywine River, and the engine and 3 cars were nearly or quite submerged. The bridge tender and his assistant, and the conductor of the train were injured, and a man stealing a ride in a freight car was nearly drowned.

And 5 others on 5 roads, involving 1 passenger train and 4 freight and other trains.

Unforeseen Obstructions.

6th, on Alabama, Great Southern, at Attalla, Ala., a car in a work train was derailed by the body of a brakeman who appears to have fallen off a car. The brakeman evidently was instantly killed.

8th, on Oregon Railroad & Navigation, near Corbett, Ore., a freight train was derailed by a landslide, and the engine and 15 cars were ditched. The fireman and a tramp were injured.

10th, on Southern Railway, at Cardiff, Ala., a freight train was derailed by a landslide, and the engine and 4 cars of lumber fell down a bank. Three trainmen were injured.

14th, on Philadelphia & Reading, near Wissahickon, Pa., a train consisting of 3 engines and a workmen's car was derailed by snow on a highway crossing and ran into a brick building near the track. Two of the engines were badly damaged. One fireman was killed and 3 other employees were injured.

14th, on Great Northern, near Edmonds, Wash., a passenger train was derailed by a landslide, and the engine fell into Puget Sound. The mail car took fire and some of the mail was burned up.

19th, on Great Northern, near Wilson Creek, Wash., a passenger train was derailed by a washout. The engine was overturned and the first 3 cars were wrecked; and the mail and baggage cars, with their contents, were burned up. Four trainmen and 1 passenger were injured, 1 of them fatally.

22d, on Lehigh Valley, near Lehighton, Pa., a freight train was derailed by a stone which had fallen upon the track, and 6 cars were wrecked. A brakeman was killed.

28th, 9 p. m., on Cincinnati, New Orleans & Texas Pacific, near Corinth, Ky., a passenger train was derailed by a timber which had been maliciously placed on the track, and the engine was overturned. The engineman was fatally injured.

And 5 others on 5 roads, involving 1 passenger train and 4 freight and other trains.

Unexplained.

4th, on Central of New Jersey, at Point Pleasant, N. J., a passenger train was derailed and the engine was overturned. The engineman was killed and the fireman was injured.

6th, on Boston & Maine, at Concord, N. H., a freight train was derailed and a brakeman was injured.

9th, on Missouri Pacific, near Strassburg, Mo., the caboose of a freight train was derailed and fell down a bank; 3 trainmen injured.

13th, on Baltimore & Ohio Southwestern, at Otisco, Ind., a mixed train was derailed and the passenger car and 3 freight cars fell down a bank. The wreck took fire and was partly consumed. Three passengers were injured.

13th, on Pittsburgh & Lake Erie, near Fleming Park, Pa., a passenger train was derailed at a switch and the baggage car and 2 passenger cars were badly damaged. The fireman was killed and the engineman and 4 passengers were injured.

Unforeseen Obstructions.

2d, on Denver & Rio Grande, near Shoshone, Col., passenger train No. 1 was derailed by a mass of snow which had fallen upon the track from a mountain, and the mail car and baggage car were badly damaged. Two trainmen were injured.

A wrecking train which was sent to the relief of train No. 1 was struck by a heavy snowslide, near Glenwood Springs, and the whole train was thrown off the track. Some of the men were thrown into the Grand River; 3 of them were killed and 2 injured.

13th, on Delaware & Hudson, near Cummings, N. Y., the engine of a passenger train was derailed and overturned, and the engineman's son, riding on the engine, was killed.

13th, on Missouri Pacific, near St. Louis, Mo., the caboose of a freight train was derailed and overturned, and the conductor and 1 brakeman were injured.

14th, on South Carolina & Georgia, near Charleston, S. C., a work train was derailed and the engine fell into the ditch. Two employees of a telephone company, for which the train was run, were killed, and 5 trainmen and 2 telephone men were injured.

15th, on Chesapeake & Ohio, near Stapleton, Va., a passenger train was derailed, and 3 passengers were injured.

16th, on Baltimore & Lehigh, near Waterville, Md., a work train consisting of 2 engines, with a baggage car between them, was derailed on a trestle bridge, and the forward engine and the car fell 20 ft. to the ravine below. Five trainmen were injured.

21st, on Denver & Rio Grande, near Leadville, Col., a relief train sent to rescue a snowplow crew which had become disabled, was derailed, and the engineman and 1 brakeman were injured. The engine was overturned. It was necessary to send food to the men by carriers wearing snow shoes.

23d, on New York Central & Hudson River, at Melrose, N. Y., a freight train was derailed and the engine and first 3 cars fell over upon the adjoining main track. Two trainmen were injured.

27th, on Georgia Railroad, near Crawfordville, Ga., a freight train was derailed and several cars were wrecked, one of them being destroyed by fire. Two trainmen were injured.

And 22 others on 21 roads, involving 2 passenger and 20 freight and other trains.

OTHER ACCIDENTS.

1st, on Erie, near Cameron, N. Y., the locomotive of a freight train was badly damaged by the explosion of its boiler. The engineman, fireman and 1 brakeman were injured, the two former fatally. The engine, No. 1327, had a Wooten fire-box.

2d, 1 a. m., on Chicago, Milwaukee & St. Paul, near Brookfield Junction, Wis., an express car in the fast mail train was found to be on fire; the messenger stopped the train as soon as possible, but before the car could be taken to a tank, a short distance back, its contents were mostly destroyed. The messenger was nearly overcome by the smoke.

14th, on New York, New Haven & Hartford, at Suffield, Conn., an engine approaching the engine house was allowed to run at uncontrollable speed and broke through the closed doors. Seven employees were injured.

14th, 1 a. m., on Norfolk & Western, at Kenova, W. Va., the locomotive of a freight train was wrecked by the explosion of its boiler, and 2 freight cars, which took fire, were burned up. The engineman was killed and the fireman and 1 brakeman were injured, the former fatally. It is said that the water was not kept sufficiently high, the crown sheet showing evidence, after the explosion, of having been greatly overheated.

And 3 others on 3 roads, involving 3 passenger trains.

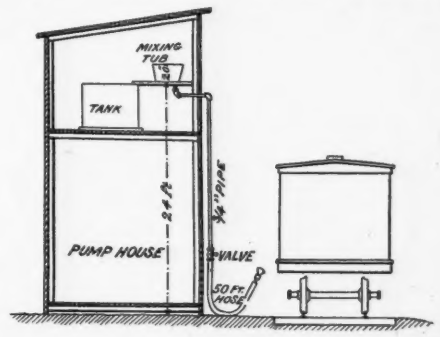
A summary will be found on another page.

Stock Car Disinfection.

Transportation by railroad is undoubtedly responsible for much of the spread of the cattle diseases which have appeared from time to time. This is, at least, the opinion held by European governments, and, on the advice of veterinary commissions, stringent measures have therefore been taken in almost every country to prevent contamination through infected cars. Quarantine against the shipment of diseased cattle from an affected territory has proved inadequate in most instances, for it has been demonstrated beyond doubt that empty cars recently used for stock transportation are as much a source of danger as their former cargo, unless they are thoroughly disinfected.

The different methods which have been tried with varying success for the purpose of disinfecting stock cars are described by Mr. Freund in the March number of the Austrian Journal of Public Works. Steam under pressure (up to 90 lbs.), with or without disinfectants in powdered form, hot solution of sodium or potassium salts, chloride or nitrosulphate of zinc, diluted carbolic acid and sublimate solutions, have been tried at various times, and either found to be ineffective or to injure the wood or iron in the car. Formaldehyde is objected to on account of it being unfit to put in the hands of common laborers, making the use of respiration-masks necessary, and also because subsequent ammonia-deordorization is needed, which makes the process both expensive and slow. Chloride of lime has recently come to the front as a valuable disinfectant, and where it has been applied in a suitable manner it has met with the full approval of the sanitary authorities. The disinfection plant for stock cars at Florisdorf, in Austria, is the result of careful experiments in that direction, and a description of the method followed at that place may therefore be interesting.

The plant consists of a pump-house containing the



necessary pumping outfit for raising the water to a tank on the upper floor. In front of this tank small wooden tubs are placed at a height of 24 ft. above the track, as shown in the sketch. Each tub contains 28 gallons. A ¾-in. pipe leads from the bottom of each tub to a convenient valve, from which a detachable rubber hose carries the solution into the car. The hose ends in a spraying nozzle, such as is used for lawn sprinkling.

The powdered chloride of lime is placed in the tubs, moistened and stirred to a dough, after which a larger quantity of water is added, making it a 5% solution. The time necessary to go over a car is from 10 to 30 minutes. Each car is treated twice at an interval of two hours, requiring half a tub at a time, or 14 gallons. On account of the low cost of the disinfectant the large quantity needed forms no serious objection.

Chloride of lime does not injure the wood of the car nor the iron work, if it is painted in the usual manner. The white color used for lettering, however, will turn yellow, unless it consists of mineral white instead of lead white.

Besides the low cost of the material and of the plant, chloride of lime disinfection has also the advantage of being perfectly harmless to the workmen, which renders skilled labor unnecessary. Still another good feature is the short time required for the work, the cars not having to be detained at the disinfection plant more than four hours.

The regulations of the United States Department of Agriculture for the disinfection of cars and cattle pens that have been occupied by cattle which may have been infected with Texas fever, prescribe that the cars shall be washed with water until clean and that then the entire interior surface of the cars, as well as of fencing, troughs and chutes, shall be saturated with a mixture made as follows; to each gallon of water add ¼ lb. straw-colored carbolic acid (106 per cent.) and 1½ lbs. of lime. In lieu of this the cars may be disinfected with a jet of steam, under a pressure of not less than 50 lbs. per sq. in.

TECHNICAL.

Manufacturing and Business.

Mr. C. E. Fowler, M. Am. Soc. C. E., has opened an office at 11 Broadway, New York, for professional work and as representative of The Osborn Co., Cleveland, O., inspectors of iron and steel work. Mr. Fowler was chief engineer of the Youngstown Bridge Co. for over six years.

The Railway Cycle Manufacturing Co., of Hagerstown, Ind., report a lively demand for their Hartley & Teeter light inspection cars. They have recently made shipments to England, Germany, Ireland, Canada, Mexico, Egypt, and Finland, and their domestic trade has been large.

The Scranton Bolt & Nut Works has been organized with a capital of $150,000, and it is expected that they will begin business during the summer. W. D. Zehnder, formerly with the Lebanon Bolt & Nut Works, is President.

The Pennsylvania will use seamless cold drawn steel boiler tubes made by the Shelby Steel Tube Co. in the water tube boilers for the ferryboat Philadelphia, now being built. This is the second boat built for the Pennsylvania in which tubes made by this company have been used.

At the annual meeting of the stockholders of the Harrisburg Foundry & Machine Co., held March 27, at Harrisburg, Pa., the following officers were elected: President and General Manager, W. R.

Fleming; Vice-President and Treasurer, David Fleming; Secretary, A. L. Groff.

The National Pneumatic Tool Co., of Philadelphia, which succeeded to the business of the C. H. Haeseler Co., March 1, reports largely increased business. Recent orders include 36 drilling and reaming machines for the Schoen Pressed Steel Co., 10 for the Atlantic Works, East Boston; 11 drills for the Baldwin Locomotive Works; 4 for the Dickson Manufacturing Co., besides a number of drills and hammers in smaller lots to other concerns.

T. W. Harvey, Jr., of 1256 Monadnock Building, Chicago, represents the Elliott Car Co. of Gadsden, Ala., north of the Ohio River, both for its Gadsden plant and for the Memphis plant recently bought. The Memphis plant is that of the old Memphis Car & Foundry Co., which has been overhauled and has a capacity of 15 cars a day. It is ready to make early deliveries.

New Stations and Shops.

The Grand Trunk is asking for bids for the new office building to be built in Montreal. The date limit is April 20. The plans were prepared by W. A. Waite, Architect, Buffalo.

The Chicago, Rock Island & Pacific has decided to build new stations this spring at Council Bluffs, Ia., and Peoria, Ill. The Council Bluffs station will be of brick about 140 ft. by 35 ft. The Peoria station will be of brick and stone about 185 ft. by 38 ft. It is probable that they will be built by the road, or by forces hired and directed under its own supervision. (Official.)

The Dearborn station, corner of Polk and Dearborn Sts., Chicago, was damaged by fire April 6 to the extent of about $6,500. The fire was discovered about 9 a. m. in a record room on the third floor, and soon reached the roof, but was confined to the upper part of the building. The station is owned by the Chicago & Western Indiana and is the terminal for six roads. Business and traffic were interrupted very little by the fire.

The Great Northern will build a steel elevator at West Superior, Wis., with a capacity of 6,000,000 bu., to cost over $2,000,000. Contract for the foundation has been let to Schmidt Bros., of West Superior, for $85,000. Between 9,000 and 10,000 tons of steel will be used.

Interlocking.

The State Railroad Commissioner of Michigan has ordered interlocking signals to be put in at the crossing of the Wabash road and the Cincinnati Northern at Britton; and also at the crossing of the Wabash and the Ann Arbor road at Milan.

THE SCRAP HEAP.

Notes.

Press dispatches of April 9 from Havana reported the suspension by a strike of all railroad traffic on the lines of the United Railroad, extending to Matanzas, Santa Clara, Guanajay, Pinar del Rio and Batabano. A dispatch to the New York Sun says that mail trains were not suspended. The striking employees demand the restoration of their wages to the basis which was in force before the war. On the 12th it was reported that the strikers had given in.

On April 4 the westbound mail train of the Chicago, Burlington & Quincy, having been delayed by a wreck in the Chicago yards, made a fast run to Omaha. At Creston, 396 miles from Chicago, the train was 66 minutes late, and it reached Omaha 29 minutes late. The run from Creston to the Union Pacific Transfer, 104 miles, was made in 113 minutes, including two stops of five minutes each. As there are many curves and adverse grades on that part of the road, the performance is considered exceptional.

The Soudan Railroad.

The railroad to Khartoum is advancing rapidly. It has now been carried 50 miles south of the Atbara River, and is progressing at the rate of 200 yds. daily. It is expected that the line will be completed to Khartoum by November.

Old Dominion Line.

The Jefferson, sister ship of the Princess Anne, of the Old Dominion Line, will be launched at the yards of the builders, the Roach Ship Building Co., Chester, Pa., Saturday, April 15. It is expected that the new vessel will be in commission early in August.

A Railroad for Formosa.

Consular letters and press despatches say that there is a movement on foot to improve and extend the short railroad and the harbor in Formosa. This, if done, will probably take some American track material and rolling stock, as the Japanese have now got pretty well acquainted with us.

Opening the New York Canals.

The Superintendent of Canals of the State of New York has tried to get the canals open early, and some time ago we announced that such was his purpose. It is now said that the ice is not yet all out of the canals and that the cold spring will involve a late opening and that it will be impracticable to get the canals in operation before April 24.

The Paris Exposition.

The Commissioner-General for the United States of the Paris Exposition of 1900, Mr. Ferdinand W. Peck, calls attention to the fact that all who desire to exhibit should immediately notify his office if they have not already done so. Such requests should be addressed to Mr. John H. McGibbons, Director of Exploitation, Auditorium Building, Chicago, Ill.

A Compressed Air Railroad.

The State Railroad Commissioners of New York have granted the application of the Racquette Lake Railway to build a standard gage road from the Clearwater station of the Mohawk & Malone Railroad to Racquette Lake, 16 miles. The motive power is to be compressed air. There is at least one obvious reason for this, namely, the diminished danger of setting the woods on fire. It is quite possible that the company may have command of a water power with which to compress the air.

Survey for Hankow-Canton Railroad.

Consul-General Goodnow, of Shanghai, on March 1, 1899, reports the arrival at that port of the surveying party which has just completed the survey of the proposed railroad line from Hankow to Canton, under contract to an American company. No trouble, says the consul-general, was made by the inhabitants of the region. On the contrary, every kindness was shown and assistance given by the local gentry and officials. This is the "Brice" enterprise. Mr. W. B. Parsons is making the surveys.

The South Side Elevated, Chicago.

The South Side Elevated carried 1,088,176 passengers during February, an average of 59,489 a day. This average is 1,533 more than that for January and 7,610 more than for February, 1898, and except the month of December, 1898, when the average traffic was 62,735 a day, is the best month that the road has had since 1893. The capacity of the power station of this road is about to be largely increased. Orders have been placed for two new engines with the Edward P. Allis Co. and for two generators of 1,500 k. w. each with the Westinghouse Electric & Mfg. Co.

The Hygiene of the Drainage Canal.

Mr. Reynolds, the Commissioner of Health of Chicago, has reported to the Drainage Board that the details of the plan for making analyses of water along the drainage canal have been completed. Samples of water for analysis will be taken at 39 different points between Chicago and St. Louis, eight samples at each point, and the tests will be made before and after the opening of the canal. The tests will take a year and will cost about $6,000. Prof. A. W. Palmer, of the University of Illinois, and Prof. E. O. Jordan, University of Chicago, will assist in the work, and St. Louis has been asked to send representatives to inspect the work. (Feb. 3, p. 89.)

Chicago Notes.

The Board of Local Improvement has advertised for bids for street paving for five miles of streets and one mile of alleys, to cost in all about $200,000. Bids will be opened April 19 and the work is to be completed about June 1. About one-half of the paving is to be of asphalt, the rest being cedar, macadam, granite and brick.

In the case of the Manhattan Cement Co. against the city of Chicago for damages for loss of property in transit during the Pullman strike in 1894, the Supreme Court of Illinois has refused to grant a rehearing. This Court decided in favor of the Cement Co. some time ago, and the refusal of a re-hearing settles the case against the city so far as the courts of Illinois are concerned.

Railroads in Brazil.

The opening and colonization of the fertile forest lands in the most southern state of Brazil seems to be possible only by means of railroads. A German concern intends starting from the navigable river Uruguay to build a railroad into the virgin forests in a northeasterly direction, and connecting in a southwesterly direction with the end of a railroad already existing. A party of engineers of the firm of Arthur Koppel, New York and Berlin, is engaged to make the preliminary studies for this new railroad. The engineers sent out by the firm of Arthur Koppel to study the projected railroads in Sta. Catherina have returned and presented their reports. They say, in brief, that the state is badly in need of railroad connection with the coast; that the present traffic is sufficient to make such an enterprise a paying one from the start and that this traffic will steadily increase.

Automobiles in France.

Consul-General Gowdy sends from Paris a synopsis of the regulations for the circulation of automobiles, as follows:

Every type of vehicle employed must offer complete conditions of security in its mechanism, its steering gear, and its brakes. Each vehicle must bear the name of the constructor, the indication of the type of machine, the number of the vehicle in that type, and the name and domicile of its owner. No one may drive an automobile who is not the holder of a certificate delivered by the prefect of the department. In narrow or crowded thoroughfares, the speed must be reduced to walking pace. In no case may the speed exceed 30 kilometers (18.6 miles) an hour in the open country, or 20 kilometers (12.4 miles) an hour when passing houses. The approach of an automobile must, if necessary, be signaled by means of a trumpet. Each automobile must be provided with two lamps—one white, the other green.

Railroad Letters in Baggage Cars.

General Superintendent R. H. Wilbur, of the Lehigh Valley, has issued revised regulations for the transmission of railroad letters on the trains of the company outside the United States mails. Following the usual paragraphs authorizing the use of the trains for letters on the business of the road to or from agents of the road and to or from connections, fast freight lines and traffic associations, the circular authorizes the transmission of:

Letters containing Waybills, Manifests, Bills of Lading, Freight Tariffs, Passenger Rate Sheets, Tracers, Junction Car Reports, Advertising Matter or copies of any of the foregoing, exchanged between the officers and agents of this Company and the officers and agents of other Railroad Companies, over whose roads the traffic to which they relate passes, provided the envelopes or wrappers containing such letters are unsealed and are clearly marked to show the character of the contents. All letters or packages carried under the provisions of this circular must be marked with the letters "R.R.B." or "R.R.S." The Company's railway train service must not be used for transmitting any letter or communication not relating to the business of the Company, unless enclosed in a stamped envelope duly directed and properly sealed, so that the letter cannot be taken therefrom without defacing the envelope, with stamp of sufficient denomination to cover the postage that would be required thereon if the same were sent by mail, and unless the date of the letter or of the transmission, or receipt thereof, be written or stamped on the envelope.

A 26-Ton Load in One Piece.

The Montpelier & Wells River Railroad has sent to its friends copies of a picture showing a single block of granite 14 ft. 4 in. square which was recently shipped from the quarries on the line of that road, at Barre, Vt., to Cincinnati, O., on a platform car. The stone is 20 in. thick and weighs 52,680 lbs. It was loaded on the car standing, or rather hanging, edgewise, the supports being two transverse timbers run through holes in the center of the block. The floor of the car was cut out in the center so that the lower edge of the block was let down to within eight inches of the level of the rail. The top was 15 ft. 1 in. above the rail. The timber blocking, for supporting the transverse pieces and for distributing the weight to both trucks, was about 4 ft. high above the floor. The weight of the car was 41,000 lbs. and of the blocking 7,300 lbs., making the total weight of the car, when loaded, 100,980 lbs. The block was for the base of a monument. It was sent over the Central Vermont, the Ogdensburgh & Lake Champlain, the New York Central, the Michigan Central and the Cincinnati, Hamilton & Dayton.

Lawsuit for a "Complimentary."

At Toronto, April 5, a writ was issued against the Grand Trunk Railway Co. on behalf of the Niagara Falls International Bridge Co. and the Niagara and Suspension Bridge Co. to compel the issuance of annual passes to the directors of both bridge companies over all railroad lines using the bridges. The companies are respectively the American and Canadian owners of the two railroad bridges spanning the Niagara River below the falls. Under an agreement made in 1855, the Grand Trunk Railway leases all rights of way over the bridge for $59,000 annually. In the agreement the issuance of annual passes to the directors is stipulated, and passes over the Grand Trunk annually are provided. The directors of the companies claim, however, that the stipulation covers all other railroads using the bridges under subleases from the Grand Trunk, and by this action expect to compel the Grand Trunk to procure passes from their sub-lessees for the plaintiff directors. There are twenty directors in the two companies, and the railroads over which passes are asked are the Lehigh Valley, New York Central, Michigan Central, Rome, Watertown & Ogdensburg and several minor lines. The suit has been set down for trial at Ottawa, June 19.

Lively Ticket Selling.

One thousand railroad tickets sold in three hours is the record which General Passenger Agent A. B. Cutts, of the Minneapolis & St. Louis, brings back with him from Augusta, Ga., where he handled the ticketing of the entire Fifteenth Regiment on its return to Minnesota. Mr. Cutts went to Augusta about two weeks ago to secure a little of the return business for his line. When he arrived there the situation was so complicated that at request he wired particulars to the Western Passenger Association. He was immediately asked to remain there and take charge of the ticketing in the interests of the association.

"And," said Mr. Cutts, "I never want another such experience. Each of the Chicago-Augusta and the Chicago-St. Paul lines were represented by at least one man. Some of them had four or five. I opened up a joint ticket office in the big mess hall. Every line had a little stall to itself. The whole staff worked night and day to get those tickets ready for pay day. We had to take the company rosters and make out the tickets according to that. If we had stopped to make out each ticket as the men asked for them we should be there yet.

"You never saw such a bedlam in your life as there was when the men began to get their money. They were paid off at the rate of one company every twenty minutes and they trooped into the mess hall ticket office with a whoop and a rush that broke down our rickety little counters almost the first thing. Some of us had sat up till 4 o'clock that morning preparing the tickets, and it was a good thing that we did. Otherwise we would have been most ingloriously swamped. The boys were so tickled to be mustered out, and to get their pay and traveling expenses that nothing could curb them."

Mr. Cutts emphatically denied the reports that the Chicago lines had tried to secure full rate from the soldiers. The association lines voluntarily offered a half rate and because in return they asked the privilege of routing the business in the most economical manner there was some criticism. The disturbing element was successful in that the business was not pooled but was allowed to take whatever course it choose. The commissioned officers were in favor of the route pool proposed by the railroads, which would have carried the whole regiment by special trains through to destination.—Minneapolis Times.

LOCOMOTIVE BUILDING.

The Seaboard Air Line is in the market for a number of new locomotives.

The Washington, Westminster & Gettysburg (see Car Building column) will want some motive power.

We are officially informed that the Grand Rapids & Indiana intends to buy no additional locomotives.

The Baldwin Locomotive Works has an order to build 36 mogul locomotives for the Uganda Railway of Africa.

The Lucklamute Valley & Western expects to place orders for locomotives about June 1. (See Car Building column.)

The Parral & Durango has ordered two locomotives from the Baldwin Locomotive Works. In our last issue we noted an order for the same number placed with H. K. Porter & Co.

The Barry Railroad, of England, has ordered five locomotives from the Cooke Locomotive & Machine Works. They will be side tank switchers with three pairs of driving wheels and trailing trucks.

It has been reported that the Denver & Rio Grande would soon order 10 more locomotives. We are officially informed that 10 were ordered from the Brooks Locomotive Works a few weeks ago, to be the same as the 10 then being built for the road at the same works, making 20 in all. They will be 10-wheel engines, with 21 in. x 26 in. cylinders.

The Chesapeake & Ohio has ordered two 8-wheel passenger locomotives from the Schnectady Locomotive Works. These are to be similar to the engines of the same type recently ordered by the Chicago & Northwestern for its fast mail service, and will have 2,500 sq. ft. of heating surface. The road has also ordered from the Richmond Locomotive & Machine Works nine of the consolidation engines referred to in our issue of March 24. They will weigh 184,200 lbs., with 165,400 lbs. on the driving wheels, and have 22 in. x 28 in. cylinders, 56 in. driving wheels, extended wagon top type boilers, working steam pressure, 200 lbs.; fireboxes, 121⅝ in. long and 41⅜ in. wide, and tank capacity for water, 6,000 gals. More locomotives will probably be ordered for the Greenbrier branch, soon to be built.

The three switching engines ordered from the Schenectady Locomotive Works by the Houston & Texas Central, as stated in our issue of March 10, are for June and July delivery; they will weigh 99,000 lbs. and have 18 in. x 24 in. cylinders; 50 in. driving wheels; straight boilers, with 200 charcoal iron tubes, 2 in. in diam. and 11 ft. long; working steam pressure, 160 lbs.; fireboxes 96 in. long and 33⅞ in. wide, of best quality firebox steel; and a tank capacity for 3,000 gals. of water. The specifications call for Westinghouse and American brakes for driving and tender wheels and for train service; hammered iron axles, with journals 7½ in. x 8½ in.; Jerome piston and valve rod packings, American safety valves, springs of crucible cast steel tempered in oil, American open hearth steel driving wheel tires and double plate chilled tender wheels of first class manufacture.

The Elgin, Joilet & Eastren has ordered two consolidation and three switching engines from the Richmond Locomotive & Machine Works. The consolidation engines will weigh about 160,000 lbs., of which 147,000 lbs. will be on the driving wheels, and have 21 in. x 28 in. cylinders; 51 in. driving wheels; straight top boilers; working steam pressure, 200 lbs.; fireboxes 120 in. long, 41 in. wide and 68 in. deep at front; tank capacity, 5,000 gals. The switching engines will have 17 in. x 24 in. cylinders; 51 in. driving wheels: straight top boilers; working steam pressure, 180 lbs.; fireboxes, 61 in. long, 33½ in. wide and 61½ in. deep, and a tank capacity for 3,000 gals of water; the engines will weigh 86,000 lbs. The specifications call for New York air brakes, Lowmoor iron axles, Buckeye couplers, Star headlights, Jerome metallic piston and valve rod packings, Coale safety valves, Leach sanding devices, Richardson balanced slide valves, Nathan No. 9 special sight feed lubricators, cast steel wheel centres, Midvale tires, Tennessee bloom iron stay bolts, Taylor iron pistons, valve stems and crank pins, and Magnesia boiler lagging. The switching engines will have Ohio No. 8 injectors on the left side and Hancock No. 7 inspirators on the right side. The freight engines will have Ohio No. 10 injectors on the left side and Hancock No. 9 inspirators on the right side.

As noted in our issue of last week, the Cincinnati, Hamilton & Dayton has ordered two eight-wheel passenger, three 10-wheel freight and three six-wheel switching locomotives from the Pittsburgh Locomotive & Car Works. These engines were ordered April 1 and are all for August delivery. The passenger engines will have cylinders 18 in. x 26 in.; drivers, 69 in. in diam., and a total weight of 115,000 lbs. They will have Belpaire boilers; working steam pressure, 180 lbs.; tubes, 12 ft. long and 2 in. outside diam.; fireboxes, 102 in. long; tank capacity for water, 4,500 gals., and coal capacity, 10 tons. The freight locomotives will have cylinders 18 in. x 24 in.; drivers, 57 in. in diam.; Belpaire boilers, 60 in. in diam.; working steam pressure, 180 lbs.; 254 tubes, 12 ft. 6 in. long and 2 in. in diam.; fireboxes, 96 in. long by 34⅜ in. wide; tank capacity, 4,500 gals., and for coal, 10 tons. The switching engines will have cylinders 18 in. x 24 in.; wheel centers, 44 in. in diam.; boilers, 56 in. in diam., and tank capacity, 3,000 gals. All of the engines will be equipped with Westinghouse air brakes (Westinghouse-American driver brakes on passenger engines), Leach sanding devices and Cooke & Strong bell-ringers. The freight and passenger engines will have Sterlingworth brake beams, electric headlights, Coale safety valves, Detroit sight-feed lubricators, Detroit Steel & Spring Co.'s springs. The freight engines will have two No. 9 Monitor injectors and steel wheel centers 50 in. in diam. The passenger engines will have Gold steam heating equipment and steel wheel centers 62 in. in diam.. with Standard tires. Standard truck and tender wheels will also be used.

CAR BUILDING.

It is reported that the Hocking Valley will order about 25 steel cinder cars.

The Columbia Refrigerating Co., 43 Cedar street, New York City, will build 500 refrigerator cars.

The Chicago Great Western has ordered two coaches from the American Car & Foundry Co.

The Buffalo, Rochester & Pittsburgh has placed an order for 12 passenger cars with the Jackson & Sharp Co.

The Wheeling & Lake Erie is about to ask bids for building the 500 box, flat and coal cars previously mentioned.

The Seaboard Air Lines is preparing specifications for 20 passenger cars and will also order about 1,000 freight cars.

The Chesapeake & Ohio will probably order some additional equipment for the Greenbriar branch, soon to be built.

It is reported that the Texas Midland will order about 200 cars later in the spring. We have no official information.

The Washington County has ordered the eight cars for passenger service referred to March 31 from the Jackson & Sharp Co.

The Copper Range has ordered 100 flat and 50 box cars from Pullman's Palace Car Co. in addition to the passenger cars noted last week.

We are reliably, but not officially, informed that the Rio Grande Western will shortly order several hundred steel coal cars of 80,000 lbs. capacity.

The Toledo & Ohio Central has laid aside for the present the question of ordering box cars and is now asking bids for building 500 coal cars of 60,000 lbs. capacity.

The Wheeling & Lake Erie has asked preliminary bids from a few builders and is said to want about 400 box cars and 400 coal cars. The matter is very uncertain.

The contract for passenger cars for the Delaware, Lackawanna & Western, referred to in our issue of February 10, was about to be let as we were going to press.

We are officially informed that the St. Paul & Duluth has not definitely decided to buy any new equipment, as recently noted, but that the road has the matter under consideration.

The Lucklamute Valley & Western, a road now building, expects to be ready to order rolling stock about June 1. J. S. Talbot, of Falls City, Ore., is President. (See Railroad Construction column.)

The Washington, Westminster & Gettysburg, which is about ready to let contracts for building the road, will shortly take up the question of rolling stock. (See Railroad Construction column.)

The Illinois Central has prepared specifications for new box and coal cars and it is understood will order 1,000 of each in the near future. The road is now trying a sample box car of 80,000 lbs. capacity which, if satisfactory, will be made standard.

The Choctaw & Memphis has placed an order with the Mt. Vernon Car Mfg. Co. for 100 box, 100 gondola, 50 flat and 10 caboose cars. They will all be of 60,000 lbs. capacity and the box, coal and flat cars will be equipped with Westinghouse brakes, Tower couplers and Simplex bolsters. The box cars will have McGuire grain doors and Excelsior inside galvanized iron roofs.

The Lorain Steel Co. has ordered 175 gondola cars from T. W. Harvey, Jr., representing the Elliott Car Co., of Gadsden, Ala. Of these cars 100 are to be 66 ft. long and 75 will be 34 ft. and 36 ft. long. It is understood they will be built on the specifications of the Cleveland, Lorain & Wheeling. The 66-ft cars will be of 80,000 lbs. capacity, like the one illustrated in our issue of March 31.

The Minneapolis & St. Louis on April 6 ordered from the St. Charles Car Co. the 10 coaches and four mail and express cars noted in our issues of March 24 and 31. These cars will be 57 ft. long and are for May and June delivery. They will have M. & St. L. passenger trucks and bolsters; Sterlingworth brake beams; Lappin brake shoes; Westinghouse air brakes; More, Jones & Co.'s brasses; Miller hook couplers; McCord journal boxes and lids; Pullman wide vestibules; Standard Coupler Co.'s platforms; McKee-Fuller wheels; French springs; Hale & Kilburn seats. Doors, fastenings, curtains and fixtures will be of the car company's patterns.

We noted last week the report that the Chicago, Rock Island & Pacific would build some more freight cars. We are now officially informed that 150 box cars will be built at the Horton, Kan., shops of the road and will be finished this summer. They will be of 60,000 lbs. capacity, 34 ft. long, 8 ft. 6 in. wide and 12 ft. 1⅞ in. high, and weigh 29,000 lbs. Diamond trucks, hammered iron axles, Schoen pressed steel bolsters, Bettendorf brake beams, Streeter brake shoes, Westinghouse air brakes, Janney couplers, Dunham doors and door fastenings, American galvanized steel roofs, McCord journal boxes and journal box lids, Chas. Scott Spring Co.'s springs, standard draft rigging and C., R. I. & P. brasses will be used.

The Indianapolis (Ind.) Street Railroad intends to buy 100 new cars.

The Belt Railway, of Washington, D. C., is in the market for 60 cars.

The Capitol Traction Co., of Washington, D. C., has ordered 20 closed cars from the J. G. Brill Co.

The Metropolitan West Side Elevated, of Chicago, is asking bids on about 35 motor cars and trailers, to be ordered in about one week.

The Winchester Avenue Street Ry., New Haven, Conn., will need some new equipment. (See Electric Railroad Construction column.)

The Nashville Street Ry., recently transferred to new owners, will require some additional rolling stock for summer traffic. (See Electric Railroad News column.)

BRIDGE BUILDING.

BELLAIRE, O.—Attorney-General Griggs has instituted proceeding to prevent the rebuilding of the Baltimore & Ohio RR. bridge between Benwood and Bellaire, as the bridge will be an obstruction to free navigation in the river.

BOSTON, MASS.—The order for the draw in the Chelsea bridge specifies its change from 46 ft. to 60 ft. (Feb. 3, p. 90.)

Col. George L. Gillespie gave a public hearing on April 12 on the petition to build a new bridge across the Charles River between Boston and Cambridge, to replace the present West Boston bridge. (Jan. 27, p. 70.)

CHARLOTTE, N. Y.—The County Board of Supervisors has been petitioned for a bridge across the Genesee River, in the village of Charlotte, to connect the towns of Greece and Ironduquoit.

CHATTANOOGA, TENN.—E. E. Betts, Engineer of the Chickamauga & Chattanooga National Park Commission, informs us that the only new bridge work considered is one bridge across West Chickamauga Creek at Reed's, the superstructure being furnished by the Converse Bridge Co., of Chickamauga. The bridge is a steel structure, 16 ft. roadway and 14 ft. headway, on masonry abutments.

CHEHALIS, WASH.—A bridge will be built across the Cowlitz. Albert Schooley, Auditor and Clerk to the Board of County Commissioners.

CHESTER, PA.—The Mayor has vetoed the bill providing for a bridge across the P., W. & B. RR. tracks at Lloyd St.

CHICAGO, ILL.—The work of strengthening the Wells St. bridge, so that a floor and double tracks can be laid on the upper chords for the use of the Northwestern Elevated trains has been begun, and it will require about two months to make the changes. In the meantime the bridge has been closed to all traffic except pedestrians.

The Engineering Committee of the Chicago Sanitary District has postponed opening bids for the new bascule bridge at Taylor St. from April 10 to April 20.

DAYTON, TENN.—The County Court of Rhea County has ordered a new steel bridge over Little Richland Creek, at the Allen mill, near the State line, which is estimated to cost $2,000.

FREMONT, O.—The Lake Shore & Michigan Southern will, it is stated, build a steel bridge on Front St., and also build a new bridge over the river and rebuild the bridge over Green Creek.

HAWKESBURY, ONT.—Engineers for the Great Northern Ry. have completed soundings for the new bridge, 1,400 ft. in length, to be built over the Ottawa River at this place. (April 7, p. 251.)

INDIANAPOLIS, IND.—The Commercial Club has appointed a committee to consider the advisability of building a stone bridge at Meridian St., over Fall Creek.

IOWA CITY, IA.—The C., R. I. & P. will build a viaduct at Dodge St. crossing. The city is to pay part of the cost.

JOLIET, ILL.—The time for receiving bids for the Chicago, Rock Island & Pacific RR. bridge over the Desplaines River has been extended from March 15 to May 31. (Chicago, Jan. 27, p. 70.) Joseph F. Haas, Clerk to the Sanitary District Commissioners, Chicago.

JONESBORO, TENN.—The County Court has appropriated $4,000 for a new bridge across the Watanga River at De Vault's Ford. Public subscriptions amounting to $1,200 have also been raised.

LIBBY, MONT.—The Great Northern Ry. proposes to build a steel bridge over the Flathead River at or near Flathead. Surveys for the foundations have already been begun. The bridge will be of steel, about 738 ft. long, and will have three spans.

LITTLE ROCK, ARK.—McGee, Kahmann & Co., of Kansas City, Mo., have the contract for the substructure of the Choctaw & Memphis RR. bridge across the Arkansas. The bridge will have four spans of 400 ft. each. The Pencoyd Iron Works has the contract for the superstructure.

LOS ANGELES, CAL.—City Engineer Olmstead is preparing a report on the condition of the old bridges in Los Angeles to consider what repairs are needed.

MACON, GA.—All bids have been rejected for building the new iron bridge over the Ocmulgee River at Fifth St. Mayor Price declares that all bids, which ran from $40,000 to $60,000, were too high.

MARIPOSA, CAL.—The bridge across Mariposa Creek was destroyed by high water March 31.

NATCHEZ, MISS.—The Virginia Bridge Co. has secured the contract for building the Balfour bridge at $3,800, and for the Mammoth Bayou bridge at $3,960.

NEW YORK, N. Y.—Assemblyman E. C. Brennan has introduced a bill repealing the law of 1892, which incorporates and confers power on the East River Building Co. to erect bridges over the East River.

NORWALK, O.—Bonds to the extent of $11,000 are to be issued for a new bridge near Norwalk. F. W. Van Dussen, Mayor.

OTTAWA, ONT.—A. W. Fraser has applied to the City Council of Ottawa for the incorporation of the Ottawa & Quebec Bridge Co. for the purpose of building a bridge across the Ottawa River at or near the foot of Bank St., Ottawa, to the city of Hull.

PANABLANCA, N. M.—A bridge estimated to cost $15,000 will be built over the Rio Grande, near this place by the County Commissioners.

PHILADELPHIA, PA.—A bill has been introduced in the City Council to appropriate $180,000 to complete the Thirty-third St. bridge over the Pennsylvania and the Philadelphia & Reading railroad tracks.

The Philadelphia & Reading has awarded contracts for six single-track steel bridges at different points on the Catawissa RR. The bridges vary in length from 39 ft. to 84 ft. All superstructures will be built by the Pencoyd Iron Works, and the substructures by Smith & Campion, of Mahoney City.

PINEVILE, KY.—A portion of the Pine St. bridge across the Cumberland River, which cost $25,000, fell March 29.

PORTLAND, ME.—A new bridge will probably be built from the foot of State St. to the Portland bridge to take the place of the old Clark St. bridge. The new structure is estimated to cost $125,000, and the Boston & Maine RR. will contribute toward the cost.

POTTSTOWN, PA.—C. R. Baird & Co., Bullitt Bldg., Philadelphia, have sold the bridge works at this place, formerly owned by Coffrode & Sailor, to a syndicate of Philadelphia capitalists.

QUEBEC, QUE.—The Quebec Bridge Co., which proposes to build a bridge across the St. Lawrence from Quebec, has raised about $250,000 for the preliminary work. The city of Quebec is to grant a subsidy of $500,000, and the Province of Quebec about $500,000 more. The Federal Government will add $1,000,000 to this amount. This company some time ago advertised for bids, and it is said that the Carnegie Steel Co., the Phoenix Bridge Co., the Union Bridge Co., and the Dominion Bridge Co., of Canada, have submitted proposals, the American bids being lower than the Canadian. The location for this bridge is at Chaudiere, about nine miles above Quebec, this being the narrowest point. The entire work is estimated to cost $5,000,000.

SCHENECTADY, N. Y.—The New York Central & Hudson River RR. will build the bridge across the Mohawk River, mentioned in this column, March 10, to connect the tracks of the West Shore line with the new freight yards now being built at Hoffman's, nine miles west of Schenectady.

SPOKANE, WASH.—The San Francisco Bridge Co., San Francisco, Cal., has a contract for the new bridge in place of the structure on Washington St., across the North Channel, at $3,750.

STOCKTON, CAL.—The County Supervisors estimate that it will cost $8,000 to change the Benson Ferry bridge from a span to a drawbridge. (March 24, p. 216.)

SUISUN CITY, CAL.—The bridge on the main road between Rockville and Fairfield collapsed last week.

WHITCOMB, W. VA.—The Chesapeake & Ohio will build two bridges. (See Railroad Construction column.)

WINNEBAGO, MINN.—An iron bridge is to be built near A. Bartlett's, in place of the present wooden structure, according to report.

WINNIPEG, MAN., CAN.—The Canadian Pacific Ry. has invited tenders addressed to J. Woodman, Engineer of the Western Division, for building three 30-ft. span bridges over the Brokenhead River; three 60-ft. bridges at Whitemouth River; one 45-ft. bridge at Keewatin; one 60-ft. span bridge at Sunshine Creek, and also one 12-ft. stone arch culvert at Boyne River.

MEETINGS AND ANNOUNCEMENTS.

Dividends.

Central RR. of New Jersey.—One per cent., payable May 1.
Choctaw, Oklahoma & Gulf.—Semi-annual, 2½ per cent., payable April 29.
Cincinnati, Sandusky & Cleveland.—Semi-annual 3 per cent., payable May 1.
Georgia RR. & Banking.—Annual, 2¾ per cent., payable April 15.
Norfolk & Southern.—Quarterly, 1 per cent., payable April 10.

Cleveland City Ry.—One per cent., payable April 10.
Market St. Ry., San Francisco.—Annual, 60 cents, payable April 10.
North Chicago St. Ry.—Quarterly, 3 per cent., payable April 15.
Pittsburgh & Birmingham Traction.—One per cent., payable April 10.

Technical Meetings.

Meetings and conventions of railroad associations and technical societies will be held as follows:

American Society of Civil Engineers.—Meets at the house of the Society, 220 West Fifty-seventh street, New York, on the first and third Wednesdays in each month, at 8 p. m.
Association of Engineers of Virginia.—Holds its formal meetings on the third Wednesday of each month from September to May, inclusive, at 710 Terry Building, Roanoke, at 5 p. m.
Boston Society of Civil Engineers.—Meets at 715 Tremont Temple, Boston, on the third Wednesday in each month at 7.30 p. m.
Canadian Society of Civil Engineers.—Meets at its rooms, 112 Mansfield street, Montreal, P. Q., every alternate Thursday at 8 p. m.
Central Railway Club.—Meets at the Hotel Iroquois, Buffalo, N. Y., on the second Friday of January, March, May, September and November, at 2 p. m.
Chicago Electrical Association.—Meets at Room 1737, Monadnock Building, Chicago, on the first and third Fridays of each month at 8 p. m. J. R. Cravath, Secretary.
Civil Engineers' Club of Cleveland.—Meets in the Case Library Building, Cleveland, O., on the second Tuesday in each month at 8 p. m. Semi-monthly meetings are held on the fourth Tuesday of each month.
Civil Engineers' Society of St. Paul.—Meets on the first Monday of each month except June, July, August and September.
Denver Society of Civil Engineers.—Meets at 3 Jacobson Block, Denver, Col., on the second Tuesday of each month, except during July and August.
Engineers' Club of Cincinnati.—Meets at the rooms of the Literary Club, 25 East Eighth street, on the third Tuesday of each month, excepting July and August, at 6.30 p. m.
Engineers' Club of Columbus, (O.)—Meets at 12½ North High street on the first and third Saturdays from September to June.
Engineers' Club of Minneapolis.—Meets in the Public Library Building, Minneapolis, Minn., on the first Thursday in each month.
Engineers' Club of Philadelphia.—Meets at the house of the Club, 1122 Girard street, Philadelphia, on the first and third Saturdays of each month, at 8 p. m., except during July and August.
Engineers' Club of St. Louis.—Meets in the Missouri Historical Society Building, corner Sixteenth street and Lucas place, St. Louis, on the first and third Wednesdays in each month.
Engineers' Society of Western New York.—Holds regular meetings on the first Monday in each month, except in the months of July and August, at the Buffalo Library Building.
Engineers' Society of Western Pennsylvania.—Meets at 410 Penn avenue, Pittsburg, Pa., on the third Tuesday in each month at 7.30 p. m.
Locomotive Foremen's Club.—Meets every second Tuesday in the club room of the Correspondence School of Locomotive Engineers and Firemen, 335 Dearborn street, Chicago.
Montana Society of Civil Engineers.—Meets at Helena, Mont., on the third Saturday in each month at 7.30 p. m.
New England Railroad Club.—Meets at Pierce Hall, Copley Square, Boston, Mass., on the second Tuesday of each month.
New York Railroad Club.—Meets at 12 West Thirty-first street, New York City, on the third Thursday in each month at 8 p. m., excepting June, July and August.
Northwest Railway Club.—Meets on the first Tuesday after the second Monday in each month at 8 p. m., the place of meeting alternating between the West Hotel, Minneapolis, and the Ryan Hotel, St. Paul.
Northwestern Track and Bridge Association.—Meets at the St. Paul Union Station on the Friday following the second Wednesday of March, June, September and December, at 2.30 p. m.
St. Louis Railway Club.—Holds its regular meeting on the second Friday of each month at 3 p. m.
Southern and Southwestern Railway Club.—Meets at the Kimball House, Atlanta, Ga., on the second Thursday in January, April, August and November.
Technical Society of the Pacific Coast.—Meets at its rooms, in the Academy of Sciences Building, 819 Market street, San Francisco, Cal., on the first Friday in each month, at 8 p. m.
Texas Railway Club.—We are requested to say that the spring meeting of this club will be held at Houston, Tex., April 17 and 18, instead of at Bryan, as was recently announced by circular from the club.
Western Foundrymen's Association.—Meets in the Great Northern Hotel, Chicago, on the third Wednesday of each month. A. Sorge, Jr., 1533 Marquette Building, Chicago, is Secretary.

The Detroit Engineering Society.

A special meeting of this society was held at the Hotel Ste. Claire, April 7. A discussion on locks and lock gates for ship canals was held.

Old Point Comfort Conventions.

The Old Dominion Line has made a special rate to Old Point Comfort of $6 for one way and $11 return trip for those who will attend the M. C. B. and M. M. conventions. It is the intention of the company to put in commission on May 1 the new steamer Hamilton, a sister ship of the Princess Anne.

The Railway Signaling Club.

The next meeting of the club will be held in Chicago at the Great Northern Hotel, April 25, at 2.30 p. m. Two papers will be presented: "Main Air Pipe and Connections for Electro-Pneumatic Signals and Switches," by A. M. Keppel, Jr., and "Inspection of Interlocking Plants," by W. H. Elliott. The club has been invited by the Chicago, Milwaukee & St. Paul to visit Pacific Junction, near Chicago, and inspect the new 108 lever interlocking machine lately installed and put in service there.

Engineers' Club of Cincinnati.

The regular March meeting of the Club was held at the rooms of the Literary Club on the 16th.

The death of Mr. Fred C. Weir, President of the Weir Frog Co., was announced, and a committee appointed to prepare a memoir.

Mr. James M. Harper read the paper for the evening on "The Liberty Street Tunnel and Sewer," embracing a description of repairs made at different times to the invert, first by replacing the rings of brick of which the sewer was originally constructed, by blocks of limestone, and lately replacing these stones by vitrified brick, the blocks of stone having worn entirely through in places.

St. Louis Railway Club.

The next meeting of the St. Louis Railway Club will be held in the parlors of the Southern Hotel, on Friday, April 14th, 1899, 3 p. m. Mr. L. L. Gilbert, Assistant Counsel Pennsylvania lines west of Pittsburgh, will speak on "The Securing of Greater Safety to Railway Employees and Others," and incidentally as to "The Consideration of Personal Injury and Other Claims." The annual election of officers for the Club will take place at this meeting. The evening of April 14th will be devoted to an entertainment for the members and their families at the Fourteenth Street Theater. This entertainment will be an illustrated lecture by Mr. C. M. Hobbs, Purchasing Agent, Denver & Rio Grande, on "Colorado vs. Switzerland."

Central Railway Club.

The club, at its January meeting, voted to hold a special meeting on Friday, April 14, 1899, at the Hotel Iroquois, Buffalo, to consider a revision of the Rules of Interchange, at which time a report will be presented by a special committee consisting of H. F. Ball, H. C. McCarty, E. G. Rouse, J. R. Petrie and Samuel King.

The president has appointed F. B. Griffith, James Macbeth and Pemberton Smith a special committee to arrange an entertainment for the members, to take place after the adjournment of the April meeting. Its character will be announced at that meeting. In consequence of the special meeting above mentioned the executive committee has directed the secretary to give notice that the regular meeting appointed for the month of May will not be held.

The reports of the committees on "Freight Car Roofs" and "Round House Practices" will come up at the September meeting for further discussion. Members are asked to bring to that meeting blue prints showing the standard construction of box car roofs on their roads.

Texas Railway Club.

A meeting of the Texas Railway Club will be held at the Lawlor Hotel, Houston, instead of Bryan, Texas, commencing Monday, April 17. The Houston & Texas Central will on the last day of the meeting take the Club by special train to visit Dallas, the oil fields at Corsicana and other points of interest along the road. The following papers will be presented: "The Use of Electric and Pneumatic Power and Tools as Applied to Shop Practice," by Mr. W. Jennings, Superintendent of the Mechanical Department of the Mexican International; "The Impressions of a Motive Power Man as Gathered in a Trip Abroad," by R. H. Soule, Western Representative Baldwin Locomotive Works; "The Responsibility of a Cast Chill Car Wheel Maker; Its Uses and Abuses," by E. S. Marshall, General Sales Agent, Missouri Car & Foundry Company; "Relative Merits of Improved Metal Draft Gear," by J. R. Cade, Master Car Builder, Southern Pacific Ry.

Two papers presented at the September meeting will be discussed, namely, "Safety in Train Air Brake Appliances" and "Economy in the Increased Capacity of Cars."

American Society of Civil Engineers.

At the meeting of the American Society of Civil Engineers, April 5, a paper was presented by Mr. L. M. Hoskins on "The Position of Loads to Cause a Maximum Stress in Any Member of a Bridge Truss." This paper was published in the March Proceedings, which issue contains also the discussion on "Dry Docks" and that on "Street Grades and Cross Sections."

On April 12 a meeting of the Juniors of the Society was held with an informal discussion on the duties and responsibilities of an inspector.

At a meeting of the Board of Direction in January the standing committees for the year were appointed, namely: Finance, Messrs. Whinery, Owen, Deyo, Cartwright and Manley; Publication, Messrs. North, Thomson, Herring, Haines and Ricketts; Library, Messrs. Stearns, Benzel, Hunt, Bucholz and Kennedy. An appropriation of $800 has been made for binding volumes and for buying new books for the library. The next regular meeting will be held on April 19 at the Society's house, and the annual convention will be held at the Stockton Hotel, Cape May, N. J., June 27-30.

PERSONAL

(For other personal mention see Elections and Appointments.)

—Mr. Oliver H. De Young, Master Mechanic of the Galveston, Harrisburg & San Antonio RR., died recently at El Paso. Mr. De Young was born in Baltimore, Md., in 1859, and entered the railroad service in 1875 with the Texas & New Orleans.

—Mr. John W. Savin, General Agent of the Ensign Mfg. Co., died at Old Point Comfort, Va., April 10. Mr. Savin was for more than 15 years connected with the Ensign Mfg. Co. and was previously with the F. E. Canda & Co. car wheel works, of Chicago.

—On the 29th of March occurred the death of Mr. Enoch E. DeKalb at Syracuse, N. Y. Mr. DeKalb was the inventor of a system of car ventilation which has been widely indorsed for efficiency and economy, but which, after some success on an important railroad, failed of financial success. Mr. DeKalb was a Virginian by birth and was 66 years old. He was a man of most estimable character.

—Mr. Menard K. Bowen, President of the Chicago City Ry. Co., died in Chicago April 9 from the effects of an operation for appendicitis. Mr. Bowen was born at Jefferson Barracks, Mo., in 1858, being the son of Gen. John S. Bowen, of the Army. He was a civil engineer by profession, a graduate of Washington University, St. Louis. He served under the Mississippi River Commission and was assistant engineer on the jetties at the passes of the Mississippi. He was Chief Engineer and Superintendent of Construction of the Kansas City Railway, was, for a time, in New York City, and finally went to Chicago as Superintendent of the Chicago City Railway Co. In 1897 he became General Manager and January, 1898, was made President.

Mr. Bowen was a well-rounded man, clear and simple in speech and with a strong personality. He was an engineer of considerable experience, a business man of remarkable keenness, an officer of much firmness, but big enough to be simple and courteous. Combining these qualities he impressed greatly those with whom he came in contact. Street railroad officers will not only remember the man, but also his work. During his connection with the Chicago City Ry. Co. he was instrumental in bringing about many changes and extensions, important alterations in the power houses and in reducing the operating expenses to a remarkably low figure. During this time he also designed and improved apparatus and machinery. One of his very interesting and serviceable works in this direction was the building of his dynagraph car for street railroads, described in our issue of Dec. 11, 1896.

ELECTIONS AND APPOINTMENTS.

Baltimore & Ohio.—A. M. Kinsman has been appointed Engineer of Construction West of the Ohio River, with headquarters at Zanesville O.

At a meeting of the stockholders held April 11, the following Directors were elected: Wm. Salomon, New York; Jacob H. Schiff, New York; James J. Hill, St. Paul; Norman B. Ream, Chicago; James Stillman, New York; Edward H. Harriman, New York; J. Kennedy Tod, New York; Charles Steele, New York; Alexander Brown, Baltimore, and H. Clay Pierce, St. Louis.

Brookville.—Fred. L. Haines has been appointed Auditor.

Canadian Pacific.—We are officially informed that James Oborne, who was recently appointed Superintendent of the Western Division, has been appointed General Superintendent of the same Division, with headquarters at Winnipeg, Man.

Chicago & Alton.—At a meeting of the stockholders E. H. Harriman was elected President, succeeding T. B. Blackstone, resigned. The Directors are as follows: E. H. Harriman, C. H. Chappell, M. L. Schiff, A. W. Kreck, W. A. Simonson, of New York; J. W. Doane, R. C. Clowry, J. C. Hutchins and W. H. Henker, of Chicago, Ill.

Chicago, Lake Shore & Eastern.—We are officially informed that F. D. Raymond has been elected Secretary, succeeding J. S. Keefe, resigned. Mr. Raymond is also Treasurer of this company.

Delaware, Lackawanna & Western.—L. T. Canfield has been appointed Master Car Builder, with headquarters at Scranton, Pa. Effective April 15.

Delaware, Susquehanna & Schuylkill.—J. H. Pennington has been appointed Superintendent Motive Power, with headquarters at Drifton, Pa., succeeding J. R. Wagner, deceased.

Elgin, Joliet & Eastern.—Samuel Spencer, President, has resigned.

Galveston, Houston & Henderson.—At a meeting of the stockholders held at Galveston, Tex., April 4, J. H. Hawley was elected Vice-President and Director.

Galveston, Houston & Northern (successor to the Galveston, La Porte & Hudson).—The officers of this newly incorporated company are: President, J. T. Munson, Denison; Vice-President, L. J. Smith, Kansas City; General Manager, D. W. Rider, Kansas City; Secretary and Auditor, F. S. Yantis, Paragould, Ark.; General Attorney, R. C. Foster, Denison, and General Counsel, C. S. Broadhead, St. Louis, Mo. The directors, including those above mentioned, except D. W. Rider, are: F. Hacker, J. M. Dorrance, DeLacy Chandler, W. B. Munson and John H. Atkinson. (See General Railroad News column, April 7, p. 255.)

Great Northern.—John F. Stevens has been appointed Chief Engineer, with headquarters at St. Paul, Minn., succeeding N. D. Miller.

Indiana & Illinois Southern.—Charles P. Walker, heretofore Purchasing Agent, has been appointed Trainmaster, with headquarters at Sullivan, Ind.

Kanona & Prattsburgh.—At the annual meeting held in New York, April 3, John Alvin Young and Rufus R. Graves were elected Directors.

Kansas, Oklahoma & Gulf.—The officers of this company, referred to in the Construction column, are: President and Attorney, Ed. L. Peckham, Blackwell, Okla.; Vice-President, J. H. Waite, Blackwell; Secretary, W. W. Peckham, Blackwell; Treasurer, W. C. Robinson, Winfield, Kan. The directors are the above officers and G. H. Buckman and J. C. Pollock, W. P. Hardwick and C. J.

Peckham, of Blackwell, Okla., and J. T. Woodruff, W. P. Newton and W. H. Upton, of St. Louis, Mo.

Lehigh Valley.—John Vought has been appointed Master Mechanic, succeeding Frederick Roth, of Hazleton, Pa., resigned.

Michigan Central.—Charles F. Cox has been elected Treasurer, succeeding Daniel A. Waterman, deceased. F. Middlebrook has been elected Assistant Treasurer. Their headquarters are at New York.

Pennsylvania County.—John B. McKim, heretofore Trainmaster of the Erie & Ashtabula Division, has been appointed Superintendent of the Western Division, with headquarters at Fort Wayne, Ind., succeeding C. D. Law.

Pittsburgh, Lisbon & Western.—G. W. Dixon has been appointed Master Mechanic, with headquarters at New Galilee, Pa., succeeding Richard Beeson, resigned.

St. Louis & San Francisco.—The statement made a few weeks ago, that Thomas G. Hay had been appointed Passenger and Commercial Agent of this company, was incorrect. Mr. Hay is still connected with the Meixcan National as City Passenger and Ticket Agent.

Southern Pacific.—At a meeting of the stockholders held April 5, E. F. Searles was elected a Director, succeeding T. E. Stillman, resigned. H. E. Huntington, First Assistant to President C. P. Huntington, with headquarters at San Francisco, Cal., has resigned.

Texarkana & Ft. Smith.—F. T. Robertson, Engineer of Maintenance of Way, with headquarters at Texarkana, Tex., has resigned.

Washington County.—H. C. Robinson, Chief Engineer, with headquarters at Calais, Me., has resigned.

Washington, Westminster & Gettysburg.—The officers of the two companies chartered to build this proposed line, referred to in the Construction column, are:

Pennsylvania company: James B. Colegrove, President, Washington, D. C.; C. H. Duttera, Vice-President, Littlestown, Pa.; Samuel Bushman, Treasurer, Gettysburg, Pa.; Charles D. Trostel, Secretary, Gettysburg; Hon. Robert Snodgrass, General Counsel, Harrisburg, Pa.

Maryland company: James B. Colegrove, President, Washington, D. C.; T. Herbert Shriver, Vice-President, Union Mills, Md.; Wm. B. Thomas, Treasurer, Westminster, Md.; Henry A. Cady, Secretary, Washington, D. C.; Richard M. Venable, General Counsel, Baltimore, Md.

York Southern.—Chas. H. Jones, Jr., has been elected President, succeeding D. F. Lafean, of York, Pa.

RAILROAD CONSTRUCTION,
New Incorporations, Surveys, Etc.

ASTORIA & COLUMBIA RIVER.—Supplementary articles of incorporation were filed in Oregon April 4 for a branch from Gobble to extend across the Columbia River to Kelema, Wash., connecting with the Northern Pacific.

ATLANTA & WEST POINT.—The building of the Belt Line around the east side of Atlanta, Ga., is held awaiting the decision of the Supreme Court of Georgia in the case of the Central of Georgia vs. this company, decision of which is anticipated in about 30 days. The line as projected will begin at a point near the western limits of the city and run to a point near the eastern limits, at an average distance of about one-quarter of a mile from the city limits, being approximately six miles long. It will connect the Georgia and the Seaboard Air Line at the eastern terminus, and the Central of Georgia and the Atlanta & West Point at the western end. (Oct. 21, 1898, p. 768.)

BIG ROCK.—This company was incorporated in Arkansas April 4, with a capital stock of $15,000, to build a standard gage road in Little Rock from the junction of Newton avenue and Hays street to Fort Logan H. Roots. The Directors are: Arthur Neville, J. H. Hollis, D. Bodeman, J. F. Lenon and Maxwell Coffin. Mr. Coffin is President of the Hoxie, Pocohontas & Northern; residence, Little Rock.

BOISE, NAMPA & OWYHEE.—Grading is to be begun soon, according to report, on the extension from Guffey, Ida., south 10 miles. McDonald & Kase, of Nampa, Ida., have the contract. (March 31, p. 235.)

BRIDGEPORT & HELENA.—This company filed articles of incorporation in Oregon April 5, to build this line from Huntington Bridge, on the Oregon Short Line, to run north 95 miles along Snake River, to Helena, Ida. The capital stock is $5,000,000. W. Thomas Hart, of Weiser, Ida., is President, and Eugene Schiller, of Huntington, Ore., Chief Engineer. (Jan. 13, p. 33.)

BROOKVILLE.—G. W. Smith, of Brookville, Pa., who has the contract for building the spur from Summit, Pa., down Hetrick Run toward Blowtown and back up Webster Run to the head of Clear Creek, about three miles, writes that grading is not yet begun, but that he hopes to begin soon. The line is for logging purposes. Cook & Graham will supply the rails and rolling stock. (Dec. 16, 1898, p. 903.)

BUFFALO & SUSQUEHANNA.—The General Manager writes that the company has no plans for extending this railroad to Belfast, N. Y. (Feb. 3, p. 92.) There are some plans under consideration for extensions, but none of them are so far matured that a statement can yet be made.

The Clinton Coal Co. has leased several thousand acres of coal lands in Leidy Township, Pa., and it is stated that the B. & S. will build an extension from Cross Form southwest to that place, about 10 miles.

BUFFALO, ROCHESTER & PITTSBURGH.—This company expects to have its line completed in May. It is to run from Lindsey, Pa., west 60 miles via Bateman, Heckle, Mosgrove, Craigsville and Carbon Centre to Butler. Track is laid from Lindsey to Little Mahoning Creek, 15 miles, and from Butler to Buffalo Creek, 10 miles. By May 1 the company expects to have track laid at the east end to Dayton, 18 miles, and at the Butler end to Craigsville, 15 miles. Men are now at work erecting the bridges and laying track. The whole line is laid with 100-lb. rails, oak ties and stone ballast. J. M. Floesch of Kittanning, Pa., is Chief Engineer. (Official.)

CANADIAN PACIFIC.—W. F. Tye of Trail, B. C., Chief Engineer of Construction, has given notice at Victoria, B. C., of plans for the Columbia & Western branch line, as follows:

Two branch lines from Grand Forks, B. C., to Carson, B. C.
Branch line from Eholt Summit to Summit, Greenwood, Wellington and Whites mining camps.
Branch line from Cascade City to International boundary.
Branch line from Cascade City to Christina Lake.
Branch line from main line near Eholt Summit to Long Lake mining camp.
Branch line from Greenwood, B. C., to Copper and Deadwood mining camp.
Located line from Midway, B. C., to Rock Creek, B. C.

CHESAPEAKE & OHIO.—This company has decided to build a line from Whitcomb on its main line to White Sulphur Springs, W. Va., to run up Greenbriar River about 95 miles through Marlington (55 miles) to the forks. (April 7, p. 152.) Location is made on 56 miles and the road will be about to contract within a few days. Heavy traffic will be south and there is no opposing grade in that direction. The maximum grade going north is 16 ft. per mile. The maximum curvature 10°. There will be two iron bridges across the Greenbriar River, each 280 ft. long and two short tunnels. No rails or rolling stock have been bought and further action of the directors will be necessary to determine the amount needed. (Official.)

CHICAGO & NORTHWESTERN.—Surveys were to be begun this week, according to report, for an extension from Stephenson, Mich., near Menominee, to run west about 12 miles to White Rapids on the Menominee River, where a big paper and pulp mill plant will soon be erected.

CHICAGO, BURLINGTON & QUINCY.—According to press reports, the General Manager confirms the statement that the Burlington & Missouri line is to be extended from Alliance, Neb., south 160 miles to Brush, near Denver. (April 7, p. 253.)

CHICAGO, MILWAUKEE & ST. PAUL.—Instead of building the extension to Spencer, Ia., from Fonda, as determined a week ago, the company will build it from Rockwell City, running southwest to Sac City and Storm Lake, and thence north to Spencer. It is understood that the line from Rockwell City to Fonda will be operated only as a stub road. (April 7, p. 253.)

Surveys are completed for the connecting line between the Boone branch of the Des Moines Northern & Western and the Mason City & Fort Dodge at Lehigh, Ia., and contract for grading will be let at once. The intention is to have the line completed by the middle of July.

A party of surveyors is at work at Montpelier, Ia., about 14 miles north of Muscatine and working toward that city. It is understood that they will survey southwest through Muscatine, Columbus Junction and Ottumway, Ia., to Kansas City for the proposed extension of the C., M. & St. P. to Kansas City.

CHICAGO, ROCK ISLAND & PACIFIC.—The company has decided to build the extension of the Ruthven branch this year from either Gowrie or Tara Junction, Ia., northwest to Sibley. The route from Gowrie will be near Rockwell City, crossing the Iowa Central at Pomeroy, the Chicago & Northwestern at Marathon, and the Chicago, Milwaukee & St. Paul at Hartley, connecting at Sibley with the Burlington, Cedar Rapids & Northern. The line from Tara Junction would pass through Pocohontas Center and thence over the same route as that from Gowrie. Either line requires about 120 miles of building. (April 7, p. 253.)

COLORADO & NORTHWESTERN.—The City Council of Boulder, Colo., has granted to this company a bonus of $2,000, one-half by the city and the other half by private subscription, to build its extension of about a mile in that city to the Chautauqua grounds. (Jan. 20, p. 52.)

COLORADO & SOUTHERN.—Grading is to begin this week, according to report, on a spur of the Cheyenne & Northern, in Laramie County, Wyo., running east to the Hartville mines.

COLORADO, TEXAS & MEXICO.—The officials of this company (successor to the Colorado Valley, Feb. 24, p. 146), have submitted a proposition to the people of San Angelo, Tex., for a bonus of $75,000, for terminal facilities and the right of way from the Cooke County line. The line is graded from Sweetwater, Tex., 30 miles, leaving 50 miles more to reach San Angelo. The company proposes to extend the line northward from Sweetwater.

COPPER RANGE.—C. E. Loss & Co., of Chicago, have the contract for grading, bridging and track laying of the 41 miles of this line from Houghton, Mich., southwest to Greeland. (Feb. 17, p. 131.) C. A. Wright is General Manager, and Thomas Appleton, Chief Engineer, both of Houghton. (Official.)

CRIPPLE CREEK.—George H. Proctor, of New York City, projector of this line, is reported as stating that the entire $4,000,000 issue of bonds has been subscribed and will be ready for delivery May 1. Everything is ready to push the work as soon as the survey is accepted. The line is from Canyon City, Col., on the Atchison, north about 25 miles to the Cripple Creek mining district. The principal office is at Phoenix, Ariz. (March 31, p. 235.)

DAYTON & FAUNSDALE.—The citizens of Greensboro, Ala., have held a meeting in the interest of this proposed line from Dayton northeast about 10 miles to Faunsdale on the Southern. G. L. Siddons, of Siddonsville, Ala., is President. (Dec. 2, 1898, p. 867.)

DECKERVILLE, OSCEOLA & NORTHERN.—The company proposes to extend its line at once from Deckerville, Ark., to Luxora, 38 miles. Forrester & Warren, of Midway, Ark., have the contract. (Jan. 6, p. 15.) E. M. Ford, of Deckerville, is Vice-President. (Official.)

DENISON, BONHAM & GULF.—This company has been incorporated in both Texas and Indian Territory, succeeding the Denison, Bonham & New Orleans, which proposes to build a railroad from New Orleans, La., northwest through Shreveport, La., and Bonham, Tex., to Denison, with extensions into Indian Territory. The old company was chartered in 1887, and grading was completed from Denison to Bonham, 28 miles, in 1888. R. C. Foster, of Denison, is President. (Feb. 24, p. 146.)

DETROIT & NORTHERN.—The promoters have fitted up officers at Marine City, Mich., and are petitioning the Common Council for right of way over the principal streets leading to the river. The company claims to have the right of way to Port Huron, including an entrance to that city. The proposed route is from Mt. Clemens northeast through Marine City to Port Huron. Theodore H. Bacon, of Marine City, is Chief Engineer. Luther S. Cushing, of St. Paul, Minn., is among the incorporators. (Feb. 10, p. 108.)

ERIE.—Press reports state that $12,000 is to be expended for establishing a new yard at Ferrona, Pa., including over 12,000 ft. of new track.

EUREKA & KLAMATH RIVER.—The extension of this line from Eureka, Cal., is to Arcata, 7½ miles. Grading is completed on about one mile. Building is being done by the company. (Jan. 6, p. 16.) About 65 men are at work. (Official.)

GEORGIA PINE.—An extension is under consideration, according to report, from Bainbridge, Ga., southwest to the Chattahoochee River.

HUNTINGTON & BROAD TOP MOUNTAIN.—The General Manager writes that the improvements proposed along this line are not so great as to necessitate calling for bids from contractors, and the work will be done by the company's men. (March 31, p. 235.)

HUTCHINSON & SOUTHERN.—Grading is begun, according to report, on the extension from Blackwell, Okla., south about 17 miles to Ponca City on the Atchison, Topeka & Santa Fe. (Feb. 10, p. 108.)

IOWA CENTRAL.—Preliminary surveys are completed for the Marshalltown & Dakota extension from Story City, Ia., to Gowrie. This includes trackage of the Boone County Mining & Ry. Co. from Frazier to Pilot Mound, recently deeded to the M. & D. The extension is proposed to run beyond Gowrie to Sibley, 145 miles, and thence northwest into South Dakota. Hamilton Browne of Marshalltown, Ia., is President of the M. & D. (April 7, p. 253.)

KANE.—This company was incorporated in Pennsylvania April 3, with a capital stock of $110,000, to build in McKean County from Kane, Pa., northeast about 10 miles to Mt. Jewett. The line was referred to in this column March 31 under Pennsylvania Roads (p. 236). The Directors are: Elisha K. Kane (President), H. W. Sweely, B. N. McCoy, Joshua Davis, N. C. Cody, Y. E. Kane and Thomas S. Kane, of Kane.

KANSAS CITY, PITTSBURGH & GULF.—The citizens of Qincy, Ill., have decided to aid in building the proposed extension of the Omaha, Kansas City & Eastern from Quincy east to Beardstown, connecting with the Baltimore & Ohio Southwestern. They will furnish ground for switch yards, aid in buying 14 miles of the right of way and will take $35,000 of stock. It is stated that $100,000 has been already subscribed.

KANSAS CITY, ST. JOSEPH & OMAHA.—This company is incorporated in Missouri, with a capital stock of $2,500,000, to build a line from Kansas City up the Mississippi via St. Joseph, 52 miles to Omaha, Neb. Among the incorporators are: J. H. Pickering, railroad builder, for ten years, associate of President A. E. Stillwell, of the Gulf line; E. R. Sweeney, cashier First National Bank; Charles H. Keith, Secretary and Treasurer of the Central Coal and Coke Co.; Joseph O. Brannebaugh, Vice-President of the Crescent Grain Co., all of Kansas City.

KANSAS, OKLAHOMA & GULF.—This company has been reorganized and will begin building at once its line from Arkansas City, Kan., south 25 miles to Ponca City, Okla. Teams are now on the ground. The road will be completed by July 1 and operated by the St. Louis & San Francisco. The officers and directors are given under Elections and Appointments. (Official.)

KANSAS, OKLAHOMA CENTRAL & SOUTHWESTERN.—This line, which was recently bought by the Atchison, Topeka & Santa Fe, will be built to coal fields, 55 miles, at once, and probably extended south to Texas this year. It has been graded from Caney, Kan., to Horse Pen, Ind. Ter., 51 miles. (Official.)

LAUREL & NORTHWESTERN.—The company has completed 13 miles of grading and 12 miles of track laying out of Laurel, Miss., on its proposed line from Laurel northwest 22 miles to Leaf River. There are 120 men at work under the direction of the company. It is the intention to extend the line beyond Leaf River, but no time is set for its completion. Surveys are made for 10 miles. (Dec. 30, p. 938.) M. W. Woodbury, of Laurel, Miss., is General Manager. (Official.)

LEHIGH VALLEY.—Pennsylvania press reports say that about $250,000 will be expended during the coming year on improvements on the Amboy and Lehigh & Eastern divisions. This will include new yard tracks at Coplay, six miles of third track between Hampton and Pattonburg, three miles of new siding at South Plainfield, and one mile of siding each at Geissingers, Three Bridges, Sunnyside and Lehighton; also interlocking systems at Easton, North Pennsylvania Junction and Catasauqua, between Phillipsburg and Pattonburg. There will be about 10 miles of new stone ballasting. Work is to be done by the company.

LINVILLE RIVER.—Grading is entirely completed and track-laying is to be begun this week on this line from Cranberry, N. C., via Montezuma to Pineola, 14 miles. W. S. Doby and H. T. Perry have the contract. All the bridges except two are completed. There are 50 men and 12 teams at work. The company proposes to build an extension from Pineola to the Southern Ry., 25.32 miles. (Feb. 17, p. 131.) A. B. Camp, of Kawana, N. C., is General Manager, and N. Reynolds, of Cranberry, Engineer. The Pineola Lumber and Trading Co., of Kawana, is interested. (Official.)

LUCKIAMUTE VALLEY & WESTERN.—Grading is completed from Falls City, Ore., to Bridgeport, three miles, on this proposed line from Falls City via Dallas, Dixie, Eola and Bridgeport to Salem, 22 miles. (Feb. 10, p. 108.) J. S. Talbot, of Falls City, is President, and A. L. Porter, Chief Engineer. (Official.)

MOBILE & OHIO.—Grading is reported in progress on the Mobile & Bay Shore extension from a point between Pritchards and Whistler, southwest to Alabama Port and Portersville. (March 3, p. 161.)

MT. JEWETT, CLERMONT & NORTHERN.—Grading is reported begun on an extension from Hazelhurst, Pa., northeast about 10 miles to Smethport, and a large number of men and teams are at

work. This may be under the charter of the Smethport RR., recently incorporated. (March 17, p. 198.)

NATCHEZ, ALEXANDRIA & WACO.—Under this title a company proposes to build a railroad from Vidalia, La., on the Mississippi River, opposite Natchez, to run west across Louisiana, through Alexandria to Toledo, about 150 miles, and thence west 200 miles more through Texas to Waco. F. M. Welsh is President.

NEW YORK CENTRAL & HUDSON RIVER.—Right of way is being obtained, according to report, for the connecting road between the main line at Hoffmans, N. Y., and the West Shore at Rotterdam Junction. This will necessitate a bridge across the Mohawk. The intention is to transfer the export freight from the West to the West Shore and land it at Weehawken, N. J., in slips admitting ocean steamers.

NORTHERN PACIFIC.—This company has made application for a charter to extend its Portage la Prairie branch in Manitobia northwest about 200 miles toward the Saskatchewan Valley.

NORTHWEST.—The section under contract to Orman & Crook, who have headquarters at Huntington, Ore., is from Naugle, Ore., to Vaughn, 58 miles. The road as projected is from Naugle north via Connor Creek, Mineral, Pomler, Oxbow and Vaughn to Tramway Junction. 73 miles. (March 17, p. 197.) Isaac E. Blake, of 11 Broadway, New York, is President, and John H. Atkin, of Huntington, Ore., Treasurer. (Official.)

OMAHA BRIDGE & TERMINAL.—This is a terminal company, although the line crosses the Missouri River, and the company has railroads in both Omaha and Council Bluffs. The main work has been completed in Iowa, but the company still must build a small amount of side track and a freight depot. In Omaha about one mile of main track is built, and as soon as the weather permits, another mile will be graded. That will bring the company into the heart of the city, where a contract is already entered into for a freight depot to be used by the Omaha & St. Louis. The company is also building a team track yard of about eight acres in extent and expects also to build a large number of side tracks this season in Omaha for various purposes. Grading is being done by Jackson Bros. and the company expects to lay its own tracks. A. Rosenberry has the contract for the freight depot. The masonry is to be done by the sub-contracting firm of Shane & Jackson. (Jan. 13, p. 33.) John R. Webster, of Omaha, Neb., is Vice-President and General Manager. (Official.)

PENNSYLVANIA.—Press reports state that this company is to build another two track tunnel at Spruce Creek, 22 miles east of Altoona, with a bridge of about 200 ft. at either end. The whole improvement to cost about $800,000. The contract is to be let in about a month.

PHILIPPINE ROADS.—A Belgian syndicate, according to a dispatch to the Daily Mail, of London, is to send a party of engineers to study the building of a railroad from Manila south about 75 miles to Batangas. It is stated that the line has been surveyed five times, but was considered impracticable under the Spanish regime.

PORT JERVIS, MONTICELLO & NEW YORK.—Under the new management extensive improvements will be made on this line, according to reports.

QUINCY & EASTERN.—Illinois press dispatches say that this company is to be incorporated soon, with a capital stock of $1,000,000. The line is to run from Quincy, Ill., via Rushville, to Beardstown, on the Baltimore & Ohio, and to Havana, on the Illinois Central. Surveyors are to be put in the field soon, and it is said that work is to be begun within 90 days. Subscriptions from towns along the line have reached $185,000. Terrance A. Clark, of Quincy, Ill., is promoter. (March 10, p. 180.)

ST. LOUIS & NORTHERN SHORT LINE.—The Warren-Sharf Asphalt Paving Co., of New York, which has the contract from the Lascede Construction Co., of St. Louis, from Peoria north to Clinton, Ia., is reported as saying that work will be begun on every 10-mile section of the road as soon as the frost is out of the ground, and that from 1,200 to 1,500 men will be put at work immediately. The entire plant for building the road is on the cars. The contractors expect to have the grading completed by Aug. 20. (Feb. 17, p. 132.)

ST. LOUIS, CHICAGO & ST. PAUL.—This company, according to report, will expend about $70,000 for improvements at Alton, Ill., including a new depot and yards. The track between Alton and Lock Haven will be improved.

ST. LOUIS, IOWA & NORTHERN.—The stockholders of this company, successor to the Eldon & St. Louis, on May 23 will vote at Mexico, Mo., on the proposition to issue $3,000,000 first mortgage bonds to build this line from Eldon, Ia., south 274 miles through the states of Iowa and Missouri to St. Louis

SANTA ANNA & NEWPORT.—Grading is to be begun at once, according to report, from Santa Anna, Cal., to Westminister.

SILVERTON, GLADSTONE & NORTHERLY.—This company has been incorporated in Colorado with a capital stock of $200,000, to build a railroad from Gladstone north up Cement Creek to Gladstone, and thence to Lake City, about 30 miles. According to the charter building must be begun by Aug. 1, 1899 and completed on or before Jan. 10, 1910. The general offices will be at Silverton, Colo., and Boston, Mass. The incorporators are: Charles E. Bibbes, J. Walter Davis and Henry M. Soule, of Boston; Cyrus W. Davis, of Waterville, Me.; E. J. Lawrence, of Fairfield, Me.; John D. Chipman, of St. Stephen, N. B.; Fred A. Jones and G. Wetmore, of St. John, N. B., and W. Z. Kinney and George H. Barnes, of Silverton, Colo.

TEXARKANA, SHREVEPORT & NATCHEZ.—This company is the reorganized Texarkana & Shreveport, which has completed its line between Texarkana and Kiblah, La. The contract for the completion of the line into Shreveport, La., 20 miles, is let to Hunter Bros. of Shreveport, and they are under bonds to complete the same by July 1. All tract material is all ready and is in the yards. (April 7, p. 254.) Ben Collins of Texarkana, Ark., is General Manager. (Official.)

TEXAS WESTERN & CIRCLE BELT.—A letter from A. B. Donaldson, of Gainesville, Tex., President of this company, would seem to indicate that building is now in progress on the line from Gainesville southwest 210 miles to Abilene. (Feb. 10, p. 109.)

UNION PACIFIC.—Work is begun at Papillion, Neb., laying 80-lb. rails between Omaha and Columbus, to replace 65-lb. rails. In Wyoming Kilpatrick Bros. & Collins, of New Castle, have the contract for 47 miles of cut-offs in three sections of 24, 16 and 8 miles respectively. The headquarters will be at Laramie. P. H. Mahoney & Co., of Omaha, Neb., have sub-contracts for five miles of this work, and the general contractors propose to let other sub-contracts. The contract calls for the entire work to be completed by Oct. 15. (March 10, p. 180.)

Relaying of rails is reported begun on the Julesburg branch between Julesburg and Denver. This line will also be reballasted. (Feb. 17, p. 132.)

VIRGINIA & SOUTHWESTERN.—Grading is reported begun on the extension of the Bristol, Elizabethton & North Carolina line from Elizabethton, Tenn., east 28 miles to Mountain City. (April 7, p. 254.)

The East Tennessee & Western North Carolina, which has also been absorbed by the Virginia & Southwestern, is to build from Cranberry, N. C., southeast about 70 miles to Lincolnton on the Seaboard Air Line. (March 17, p. 197.)

WASHINGTON & COLUMBIA RIVER.—The General Manager writes that the reports which credit the company with building two extensions in Washington this year are not authentic. (March 24, p. 218.) No definite plans have been made up to the present time.

WASHINGTON, WESTMINSTER & GETTYSBURG.—President James B. Colegrove, of Washington, D. C., writes that he is to be at the Astor House, New York, this week to complete the contract for building his line, which is projected from Rockville, north 78 miles to Gettysburg, Pa., with a proposed branch of Frederick, Md. The line will enter Washington via the Baltimore & Ohio. Surveys are completed and the entire road will be contracted within a week. The section from Rockville to Mt. Airy, 23 miles, will probably be graded first. Material will be needed for 78 miles of road and the equipment will be the finest. There are two companies in the incorporation, one in Pennsylvania and the other in Maryland, and they will be bonded probably for $1,500,000. The Pennsylvania company has a capital stock of $400,000, and the Maryland company, $1,850,000. (Jan. 13, p. 43.) The officers are given under Elections and Appointments.

WEST SHORE (CAL.).—W. S. Thornton, of San Francisco, Cal., President of this company, states that the failure of Governor Gage to sign the bill authorizing railroad companies to complete their lines when they have not lived up to the legal requirements as to amount of building, will not seriously interfere with the plans of this company. The company was incorporated several years ago to build from San Francisco southeast along the coast 77 miles to Santa Cruz, and has franchises within San Francisco and Santa Cruz, and liberal grants of right of way along the line. (April 30, 1897, p. 317.)

WEST VIRGINIA & SOUTHERN.—This line, which extends from Brownstown, W. Va., on the Chesapeake & Ohio, south to the Boone County line, is to be extended, according to report, still further south over the mountains to Racine, the county seat of Boone County.

WICHITA VALLEY.—Morgan Jones, President of this company, has recently been making an inspection of the country from Seymour to Haskell with a view to the entension of his road to that point, about 50 miles southwest. The line will also be extended from Wichita Falls into Indian Territory, probably under the charter of the Wichita Falls & Oklahoma. J. A. Kemp, of Wichita Falls, is a Director in both companies. (Feb. 24, p. 146.)

YORK SOUTHERN.—See Railroad News column.

Electric Railroad Construction.

ALLENTOWN, PA.—An ordinance has been introduced in the City Council permitting the Allentown & Lehigh Traction Co. to build an extension on Washington and on Front St., providing that the line on Sixth St. is removed.

ATLANTA, GA.—The Collins Park & Belt Line Ry. Co. has been granted right of way through certain streets of Marietta for an extension of about two miles to the plant of the Kennesaw Marble Co.

BOSTON, MASS.—The Lower Branch of the State Legislature has passed the bill to permit the West End St. Ry. Co. to relay its tracks in Tremont St., Boston, which were removed at the time of the building of the subway.

The Boston Elevated Ry. Co. has placed another contract, involving about $400,000, with the Pencoyd Iron Works, for structural steel. The agreement covers two sections of the road, one extending from the northerly line of Corning St., across the tracks of the Boston & Albany RR., through Castle and Washington Sts., then through private land of the Elevated Co., and the Consolidated Road to Harrison Ave., Beech St. and Atlantic Ave. to Rowe's Wharf. This section also includes the Y at the corner of Washington and Castle Sts. The other section extends from the northerly portal of the subway through Causeway, Commercial and Charter Sts., and includes the Y to the approach of the new Charlestown bridge. All of the main line, from Roxbury to Bunker Hill St., with the exception of the stations, is now under contract. On the other line there remains to be let the section between Rowe's wharf up Atlantic Ave. to Commercial St. (Feb. 17, p. 132.)

The Board of Railroad Commissioners gave a hearing April 10 upon the proposed location of tracks by the Boston Elevated Ry. Co. on Washington St., from Hawthorne Ave. near Bartlett St., to Castle St., being a portion of the right of way in plans approved by the Board last July and amended plans approved by the Board Jan. 20 this year.

BROCKTON, MASS.—The Brockton & Plymouth St. Ry. Co., which recently secured a franchise and right of way through Pembroke, has applied in the town of Halifax for the same privileges. When this right of way is granted, it will complete the proposed route. Horace B. Rogers, Manager, Boston, Mass.

BURLINGTON, IA.—The Burlington Ry. & Light Co., according to report, is considering the advisability of an extension to West Burlington.

CAMBRIDGE CITY, IND.—The Town Council of Hagerstown, Ind., has granted a franchise to the Cambridge City Interurban Traction Co. This company proposes to build about 30 miles of electric railroad between Cambridge City, East Germantown and Hagerstown, and possibly to Economy, and to build spur tracks to various farms, it being the object of the company to carry freight as well as passengers. Contracts will probably be let in July. (March 17, p. 198.)

CHATTANOOGA, TENN.—Two surveys for the Chickamauga Park extension of the Chattanooga Rapid Transit Co. have been made, but the company has not decided which one will be used. The company must build at least 4½ miles of extension from the present terminus in Rossville, Ga. The company on April 1 began operating the Belt Ry. line under a new lease from the Alabama Great Southern Ry.

CLEVELAND, O.—Martin Dodge of Cleveland, one of the incorporators of the Cleveland & Warren Electric Ry. Co., has made application to the County Commissioners for right of way for the proposed road to the northern part of the county. He proposes to have the road completed within two years. The entire road proposed is 50 miles long. (March 17, p. 198.)

Frank C. Osborn informs us that application will soon be made to the City Council for franchises for the proposed Inclined Plane RR., for which plans are practically completed.

I. K. Pierson, who owns the franchise granted several years ago to the Cleveland, Wadsworth & Southern Ry. Co., has been granted additional franchises for 6½ miles of road in Cuyahoga County. (Feb. 17, p. 133.)

CONNELLSVILLE, PA.—The Coke Belt St. Ry. Co., which was chartered in the early part of March to build 30 miles of electric railroad connecting Scottdale, Uniontown and Mt. Pleasant, will build two power houses, each to be about eight miles from either end of the line. Wm. H. Allen of Pittsburgh is President. The present intention of the company, according to report, is that 80 cars will be used. (March 24, p. 218.)

CORSICANA, TEX.—W. G. Baker of Corsicana, and E. N. Collom have applied for a franchise for a street railroad in Corsicana, two miles of which it is proposed to have in operation within 12 months.

DAYTON, O.—Work is reported as having been begun by the Dayton & Easton Traction Co. on the road between Xenia and Dayton. Bruno Ritty of Dayton, O., has the contract for building the road. Henry B. Pruden, Secretary of the Company, is in charge of the work. (March 17, p. 198.)

DETROIT, MICH.—The Metropolitan Ry. Co. is reported incorporated, with $25,000 as capital stock, the incorporators being: Bernard Clark, Stephen Baldwin, F. A. Baker and E. J. Baker, all of Detroit, and C. M. Bates, New York.

DOYLESTOWN, PA.—The Doylestown Trust Co., receiver of the Bucks County Ry. Co., has been given authority by the court to issue certificates for sums as may be needed to improve the railroad now operating between Doylestown and Willow Grove. It is estimated that $24,000 will be needed to make the required improvements. (April 7, p. 254.)

DUNKIRK, N. Y.—D. F. Toomey has secured the franchise for a street railroad to be operated by electricity in Dunkirk. (Feb. 24, p. 218.)

EASTON, PA.—The Wind Gap & Nazareth St. Ry. Co., with a capital stock of $60,000, has been incorporated to build an electric railroad in Northampton County from Nazareth to Wind Gap. The incorporators, of whom M. P. McGrath of Worcester, Mass., and Chas. A. Richardson are two, are practically the same as the persons interested in the several companies recently incorporated to build electric railroads in Northampton County, having Easton as headquarters. These companies, with officers, were mentioned last week in the Electric Railroad News column under Easton.

ELIZABETH, N. J.—The City Council on April 1 passed an ordinance giving Senator John Kean permission to extend the Elizabeth St. Ry. to Union Township, and also to change the motive power to electricity.

FINDLAY, O.—We are officially informed that the Findlay St. Ry. Co. proposes to build an extension to Mortimer and Van Buren and is now endeavoring to secure the required franchises.

FORT WORTH, TEX.—On April 1 the consolidation of the Fort Worth St. Ry. and the City Railway was consummated and they are now operated as one system. It is stated that there will be several extensions made and some of the old lines abandoned. Wm. P. Quigg is Manager of the consolidated companies. (March 3, p. 164.)

FREDERICK, MD.—Douglass Bros., the contractors who built the Catoctin & Myersville Electric Ry., are endeavoring to secure right of way for the proposed electric railroad between Myersville and Hagerstown. Preliminary surveys have already been made. (Jan. 27, p. 74; Feb. 10, p. 110.)

GRAND ISLAND, N. Y.—Edgar B. Jewett, J. E. Curtiss, N. W. Norton and John L. Nice have filed consents with the Clerk of Erie County at Buffalo for right of way for an electric railroad on Grand Island.

INDEX, WASH.—Surveys are reported completed for the electric railroad from Index to Galena, and work will soon be begun on the proposed road, for which it is reported considerable iron and rolling stock has been purchased. N. Rudeback, of Everett, is interested.

INDIANAPOLIS, IND.—The Indianapolis St. Ry. Co. has been granted a franchise for 35 years and is to pay the city $1,160,000 in cash installments. The fare is to be 5 cents, six tickets for a quarter and 25 tickets for one dollar, all with transfer privileges. Other provisions of the franchise to the Indianapolis St. Ry. Co., which was recently incorporated for the consolidation of the street railroads in Indianapolis, require the formation of a sinking fund, from which all bonded indebtedness shall be paid, and all stock subscriptions repaid by the expiration of the term of the franchise. The company is to turn over to

the city at the expiration of the franchise, and without cost, all track and street equipment, and the city may appraise the value of the power plant and car equipment and take control of the same. (March 10, p. 181.)

JACKSON, MICH.—The Jackson & Adrian Electric RR. Co. has been incorporated with a capital stock of $50,000 to build an electric railroad from Jackson to Adrian. The incorporators are: Chas. E. Townsend, Chas. H. Smith and Chas. A. Blair, of Jackson; H. V. C. Hart and Harry S. Fee, of Adrian.

KALAMAZOO, MICH.—The Grand Rapids & Kalamazoo Electric Ry. has secured right of way and franchise over the Silver Creek road; also over the Gull road through Kalamazoo. The franchise is for 30 years and must be used within 18 months. Franchises are already secured from Battle Creek to Kalamazoo for an extension. Arthur D. Prosser, Vice-President. (Feb. 24, p. 147.)

KANSAS CITY, MO.—The Central Electric Ry. Co. filed articles of incorporation with a capital stock of $2,500,000, for the purpose of operating the North East Electric Ry., and the Brooklyn Ave. Ry. Co., which were recently consolidated, and the Grand Ave. lines. D. B. Holmes, Frank Hagerman and Henry C. Page are directors in the new company. The Brooklyn Ave. is now changing to electricity, and improvements are contemplated for the North East line. (Jan. 27, p. 74.)

LANCASTER, O.—Persons interested in the Lancaster Camp Meeting Association are organizing a company to build an electric railroad from Lancaster out to the camp-meeting grounds, two miles. J. W. Weaver of Circleville, L. S. Shadwick of Alexandria, J. P. Curtis of Zanesville, W. M. Wikoff of New Salem, and H. G. Troot of Lancaster are interested.

LANCASTER, PA.—An ordinance has been introduced in the City Council granting permission to the Peoples' Ry. Co. of Lancaster to build street railroads on certain streets of that city. Part of the proposed right of way for this company is over the tracks of the East End Passenger Ry., and the Lancaster St. Ry. Co.

LEXINGTON, KY.—A. I. Totten is Engineer for the proposed electric railroad to be built by David Bennet, President of the Exhange National Bank, Lexington, and W. J. Loughridge, between Lexington and Richmond, Ky., 22 miles. (Nov. 25, 1898, p. 853.)

LIMERICK, PA.—The Trappe & Limerick Square Ry. Co. was chartered April 4, with a capital stock of $30,000, to build an elecrtic railroad in Montgomery County from Collegeville to Trappe and Limerick Square. The incorporators are: John G. Macpherson, William J. Leahy, John M. Emery, Lindley P. Bane and Joseph Brobson. Philadelphia, and Jade C. Wilson, of Beverly, N. J.

LISBON, O.—An electric railroad is projected from Lisbon, Columbia County, southeast about 14 miles to the Ohio River, by Daniel Moynahan, owner of the Mineral Ridge & Niles St. Ry., and William H. Head, of the Valley Ry.

LONG ISLAND CITY, N. Y.—Surveys are being made for the extension between Flatbush and Bayside by the New York & Queens County RR. Co. J. R. Beetem, Vice-President and General Manager. (March 10, p. 181.)

MAGNOLIA, MASS.—A hearing was given in Gloucester April 7 on the petition of the Magnolia St. Ry. Co. for a franchise for a road from Main St. through Pleasant and Middle Sts. to Western Ave., and over the State highway to Magnolia, in all about 4½ miles. W. B. Ferguson, of Malden is the principal promoter. (March 17, p. 199.)

MERIDEN, CONN.—At a hearing, April 6, on the application of Ex-Governor Waller for an electric railroad between Middletown and Meriden, it was announced that the New York, New Haven & Hartford was about to equip the Meriden & Cromwell road with electricity, using the third rail system, the same as now used on the branches being operated by electricity.

MILFORD, CONN.—The Milford Traction Co. proposes to lay double tracks on Lafayette Ave. to the end of Cherry St., and also a spur track to Milford Point; also to Woodmont Station, and one through North St. to the Derby line.

MT. STERLING, O.—Joseph P. Myers, John C. Entrekin and Isaac Cook, of Columbus, O.; O. W. Loofborrow, of Mt. Sterling, and others have organized the Chillicothe, Mt. Sterling & Columbus Electric Ry., Light & Power Co., to build an electric railroad from Chillicothe, about 32 miles northeast through Ross and Pickaway counties to Mt. Sterling, in Madison County, where it will connect with another electric railroad to complete a road to Columbus. The capital stock will be $300,000.

MT. WASHINGTON, MASS.—H. F. Keith, promoter of the New York & Berkshire St. Ry. Co., informs us that progress is being made for the organization of the company which proposes to build 25 miles of electric railroad from Monterey, Mass., to Great Barrington, Mass., via Mt. Washington. J. A. Machado of 203 Broadway, New York, is the company's Engineer. (Jan. 21, 1898, p. 51.)

NAZARETH, PA.—The Bethlehem & Nazareth Passenger Ry Co. has been granted its franchise in South Bethlehem. After the first five years the company is to pay to the borough 5% on each dividend declared. (Feb. 24, p. 147.)

NEEDHAM, MASS.—The Selectmen of Dedham have granted a right of way through that place to the Needham & Boston St. Ry. Co. This new line will run from Needham to Spring St., West Roxbury, and from there to Memorial Hall Square, Dedham. (Sept. 9, 1898, p. 657.)

NEW HAVEN, CONN.—The stockholders of the Winchester St. Ry., at a meeting April 6, recommended an increase in the capital stock from $600,000 to $800,000. About $100,000 will be used for new equipment, for engines for the power house and in building short extensions. It is said that about a dozen new cars will be provided.

NEW ORLEANS, LA.—C. H. Lawrence, representing the International Construction Co., of Detroit, Mich., is in New Orleans in charge of building the New Orleans & Jefferson RR., the general details of which were outlined in this column March 24, p. 219. It is proposed to have the road completed by July 1.

NEW YORK, N. Y.—The Union Ry. Co., controlled by the Third Ave. Ry. Co., is planning an extension of its 161st St. line to connect with the Manhattan Elevated Ry. at its terminus at Eighth Ave. and 155th St., and also an extension to connect with the Fort George line on Tenth Ave. The proposed extension, it is understood, is in line with the agreement recently made between the Third Ave. and the Manhattan companies whereby transfers will be exchanged.

NORTH TONAWANDA, N. Y.—Superintendent C. K. Marshall of the Buffalo & Lockport Ry. Co., is making surveys for a connection with the lines of the Buffalo, Tonawanda & Niagara Falls Electric RR. This seems to confirm the report that the B., T. & N. F. will be included in the consolidation of the Buffalo and Niagara Falls street railroads by the International Traction Co., recently incorporated for that purpose.

OSHKOSH, WIS.—Work has been begun by the Central Traction Co. on the road between Oshkosh and Neenah. (March 3, p. 163.)

PEORIA, ILL.—The Central Ry. Co. will make several improvements on the present lines and build an extension on Chestnut St. Two other extensions are reported proposed. The company is making application in the village of North Peoria for an extension of line through that place.

PERKASIE, PA.—The Inland Traction Co., which is now making surveys for the proposed 12 miles of electric railroad, elected the following directors and officers at a meeting recently held in Doylestown: Directors, John H. Pascoe, H. A. Crilly, Allentown; F. J. Crilly, Philadelphia; J. B. Alderfer, Souderton; C. F. Heckler, Quakertown. Officers: President, Mr. Pascoe; Treasurer, F. J. Crilly; Secretary, J. B. Alderfer. (April 7, p. 255.)

PHILLIPSBURG, N. J.—The Phillipsburg Horse Car RR. Co., which is now operated by the Easton Transit Co., Easton, Pa., proposes to build an extension of about one-half mile. Wm. M. Davis, President. An extension will probably be built through Hopatcong and Greenwich Townships, Warren County, N. J.

PITTSBURGH, PA.—The Pittsburgh & West End Passenger Ry. Co., which is a part of the West End Traction Co., proposes to extend the Sheridan branch to connect with the McKees Rock branch.

PLAINFIELD, N. J.—Col. E. W. Hine, Secretary of the Westfield & Elizabeth St. Ry. Co., has now made application for the entire right of way for the proposed road which is to pass through Rahway from Clark Township. Work has been begun on the line between Westfield and Elizabeth by L. W. Serrell, Jr., who has the contract. H. C. Van Emburgh of Plainfield has been appointed Supervising Civil Engineer of the project. (Feb. 10, p. 110.)

RAQUETTE LAKE, N. Y.—The State Railroad Commission have granted the application of the Raquette Lake Ry. Co. to build a standard gage road to be operated by compressed air power from the Clearwater station, on the Mohawk & Malone Ry., to Raquette Lake, a distance of 16 miles. This is the road in which the N. Y. C. & H. R. RR. officers are interested. (March 31, p. 237.)

ROCKLAND, ME.—The Rockland, Thomaston & Camden St. Ry Co. will probably build an extension to South Thomaston and another extension to Warren. Thomas Hawken, Purchasing Agent.

ROCKVILLE, MD.—The Rockville Town Council has granted the Washington & Rockville Ry. Co., of Montgomery County, right of way over the streets of that town. Oscar T. Crosby, President of the City & Suburban, of Washington, D. C., is President of this company. (Baltimore, Md., Jan. 6, p. 16.)

ROME, N. Y.—The Common Council has granted the franchise applied for by the Rome City St. Ry. for extensions of the Belt Line. Nov. 1 is the date set for the completion of the road.

SACRAMENTO, CAL.—The Sacramento Electric, Gas & Ry. Co., which has its power house at Folsom, has made a contract for 30 years with the Yuba Electric Power Co. for the use of 5,000 horsepower. The railroad company will be enabled to supply power for commercial purposes. The agreement is to take effect Aug 1.

ST. LOUIS, MO.—The North End Belt Ry. Co.'s bill, in the interest of the Terminal Association, was passed on April 3 by the Assembly over the Mayor's veto.

ST. MICHAELS, MD.—A company is reported organized with a capital stock of $150,000, to build an electric railroad from St. Michaels to Easton, thence to Centreville and possibly to Oxford. A branch line will be built from Easton to Trappe, and still another branch to Tilghmans Island, making a total of about 75 miles. The plans contemplate a power house at St. Michaels. Among the promoters of the enterprise are Herbert S. Carruth and Dr. J. C. D. Davis of St. Michaels.

SAN FRANCISCO, CAL.—The Market St. RR. Co. has had its proposed route for electric street railroads from Sixth and Brennan Sts. to Jackson and Sansome Sts. approved by the Street Committee of the Board of Supervisors.

SIDNEY, N. Y.—L. F. Raymond and Robert Cartwright are reported to have completed arrangements to build an electric railroad 12 miles, between Sidney and Franklin, and to have it in operation by July 1. The company also proposes to supply electricity for commercial purposes.

SOUTH BEND, IND.—Work is begun by the Indiana Electric Ry. on the new electric railroad connecting South Bend with Elkhart and Goshen. This company has already let contracts for the extension of the present lines from Mishawaka to Elkhart. (Feb. 10, p. 110.)

TIFFIN, O.—O. A. Kaup, Superintendent of the Tiffin, Fostoria & Eastern Electric Ry., informs us that it is not the intention of the company to build extensions this summer. (April 7, p. 255.)

WASHINGTON, D. C.—F. L. Hart, formerly General Manager and Engineer of the City Passenger Ry. Co., of Baltimore, Md., has been appointed Constructing Engineer of the City & Suburban Ry. Co., of Washington, which is now making many improvements and changing to underground electric system. About 17 miles of new track is being built. This company controls the Anacota & Potomac River and plans are in contemplation for the consolidation of these companies with other street railroads of Washington into the Washington City Ry. Co., recently incorporated.

WELLSTON, MO.—M. T. Chestnut of St. Louis is the applicant for a franchise for an electric railroad between Wellston and Jefferson Barracks.

WESTBROOK, ME.—The stockholders of the Westbrook, Windham & Harrison Electric Ry., to whom an extension of charter was recently granted by the Maine Legislature, have organized by electing the following officers: President, John C. Scates; Treasurer, Chas. N. Waterhouse; Secretary, J. H. Tolman. About 10 miles of the road has already been graded.

WESTFIELD, MASS.—The Selectmen have granted the location to the Woronoco St. RR. Co., for the extension of its Main St. line eastward, about two miles, to the town limit. Officers of the Company say that the extension will be built without delay. It is expected that the line of the Springfield St. Ry. will be extended westward to connect with that here described, thus making a through line between Westfield and Springfield, 10 miles.

WHITMAN, MASS.—The Whitman & Plymouth St. Ry. Co., through Robert O. Harris, of Brockton, has applied for right of way for continuation of the electric railroad through Halifax. The Brockton & Plymouth St. Ry. Co. has also applied for this franchise.

WILMINGTON, DEL.—The New Castle & Delaware City Ry. Co. has been incorporated, with a capital stock of $100,000, to build an electric railroad from New Castle to Delaware City. This is the company which was spoken of last week in which Peter L. Cooper, Jr., of Wilmington, is interested. Other incorporators are: Harry A. Richardson, of Dover; Peter J. Ford, Wilmington; John G. Volger, Philadelphia.

WOODBURY, CONN.—The application of the Woodbury & Southbury Traction Co. for an electric railroad in Watertown has been approved by the Board of Aldermen of that place. This company proposes to build an electric railroad between the cities of Woodbury and Watertown, and Hotchkissville and Southbury, the entire proposed road being 32 miles. The part in Watertown is to be completed by April 1, 1900. James Huntington, of Woodbury, is President. (March 17, p. 199.)

WOODSTOCK, ONT.—S. R. Ickes of Harrisburg, Pa., is reported interested in the project to build an electric railroad to connect Woodstock and Ingersoll.

GENERAL RAILROAD NEWS.

BANGOR & AROOSTOOK.—The transfer of the Bangor & Piscataquis, heretofore operated under lease, was completed on April 1. The B. & A. has completed its issue of $1,500,000 new bonds to take up the $1,225,000 of old bonds, which includes $925,000 issued by the city of Bangor. (Jan. 20, p. 55.)

BUFFALO, ST. MARYS & SOUTHWESTERN.—Call is issued for redemption of the $1,000,000 first mortgage bonds of 1897 at the Central Trust Co., New York, on Sept. 1, at 105 with interest.

CENTRAL MASSACHUSETTS.—The committee consisting of J. W. Weeks, Ephraim Stearns, Henry Woods, J. H. Gray and G. W. Morse on April 6 voted to recommend that the directors take no action on the lease to the Boston & Maine. (March 31, p. 237.)

CHICAGO & ALTON.—Practically all the stock has been deposited under the agreement and the 20 per cent. additional payment by the syndicate was called for April 12. (March 24, p. 220.)

CHICAGO & OHIO RIVER.—This property, which was sold to the Peoria, Decatur & Evansville on Jan. 31, has been turned over to the Indianapolis, Decatur & Western line of the Cincinnati, Hamilton & Dayton.

CHICAGO GREAT WESTERN.—The following official statement has been furnished with reference to the floating of the bonds of this company:

In 1898 the articles of incorporation were changed by a vote of 87 per cent. of the entire stock of all classes, so as to increase the amount of debenture stock allowed by the articles from $15,000,000 to $30,000,000, but none of the increased stock can be issued until sanctioned by a vote of the debenture and preferred A stockholders collectively at an extraordinary general meeting called for the specific purpose. On March 1, 1899, only $12,419,571 of debenture stock had been issued, which is $2,580,429 less than the $15,000,000 originally authorized. At an extraordinary general meeting of the debenture and preferred A stockholders collectively held in London on January 20, 1899, the issue of $8,000,000 additional debenture stock was authorized to be issued for the purpose of retiring the priority loan, $2,825,150 (which is the only mortgage indebtedness of the company), and to redeem at the discretion of the board of directors and the finance committee, from time to time, as opportunity offers, at or before maturity, any or all of the car trusts and other liabilities of the company which are a charge prior to the four per cent. debenture stock and for improvements. Of the $8,000,000 thus voted only $3,300,000 will be issued in 1899, the proceeds of which will be applied to pay all of the priority loan ($2,823,150), which does not mature until 1934 but by its terms is redeemable at the option of the company on six months' notice at 105. It will be called and paid Jan. 1, 1900. When this $3,300,000 is issued, probably in November, 1899, the amount of debenture stock outstanding will be $15,719,571, which may be slightly increased by exchanges under the plan of reorganization.

The sale of the $3,300,000 has been underwritten at 93 and accrued interest. It is the present expectation that no more will be issued until 1901, when certain car trusts mature.—(Commercial and Financial Chronicle.)

CHICAGO, PEORIA & ST. LOUIS.—A committee composed of T. Carmichle, Chas. F. Deane and Ed. H. Ladd has been appointed to represent holders of first mortgage gold bonds and preferred and common stock of this company. The holders of these securities are notified to deposit them with the Atlantic Trust Co., on or before May 8. The road went into the receivers' hands July 20, 1898. (July 22, 1898, p. 539.)

CLEVELAND, CANTON & SOUTHERN.—The first mortgage bondholders of the Cleveland & Canton on April 5 authorized the sale of their bonds to a Cleveland syndicate at 92 and interest at 4 per cent., with the option of making the payment on or before Oct. 1. This syndicate is said to be backed by the Cleveland Bank for Savings, the Cleveland Trust Co. and Myron T. Herrick, who is identified with the Wheeling & Lake Erie. It is understood that $4,000,000 will be expended in im-

proving the road, buying new equipment and building a belt line in Cleveland. (Feb. 24, p. 147.)

DELAWARE & HUDSON CANAL.—A mortgage has been made to the United States Mortgage & Trust Co., as trustee, to secure $1,500,000 of 3½ per cent. bonds for buying locomotives and cars. Of these 10 per cent. will be paid each year.

DELAWARE RIVER & LANCASTER.—Pennsylvania press reports state that the rails are being torn up on this partially completed line, projected from Pt. Pleasant, Pa., east 80 miles to Lancaster. Only 12 miles, from French Creek Junction to St. Peters, was completed and operated for a few weeks. Public sale of the road was made at West Chester, Pa., in 1897, for $8,300, and later the property was sold again to Samuel Thomas. (Sept. 17, 1897, p. 659; Jan. 7, 1898, p. 18.)

HOCKING VALLEY.—From information received at this office, which is believed to be reliable, we learn that the Toledo & Ohio Central and the Columbus, Sandusky & Hocking have been consolidated with the Columbus, Hocking Valley & Toledo, now reorganized as the Hocking Valley. N. Monsarrat, the former receiver, is to be President of the consolidated lines. The reorganization plan provided that the capital stock of the Hocking Valley be increased to $5,000,000 common and $5,000,000 preferred to acquire the interest of these two properties. The combined mileage of the new system is 986.47 miles. (March 10, p. 182.)

IRONDALE, BANCROFT & OTTAWA.—A writ has been issued against J. H. Plummer, A. D. Benjamin, H. S. Mara, Z. A. Lash, Q. C., the Trust Corporation of Ontario and the Bank of British North America, to prevent the sale of the bonds of the road held by the first-named defendant to the Bank of British North America. (Jan. 20, p. 55.)

JACKSONVILLE, TAMPA & KEY WEST.—The Atlantic Coast, St. Johns & Indiana River Junction at the foreclosure sale on April 3 was sold to T. Sanford Beatty, of New York, for $60,000. As stated last week, the main line was sold to the Plant Investment Co. The committee of holders of unassented receipts, of which Winthrop Smith is chairman, states that the sale to the Plant company will leave a dividend of less than 20 per cent. out of the proceeds of the sale for the first mortgage bondholders, and gives notice that holders of these receipts who desire to obtain the benefit of the contract made by the committee for the sale of the bonds at 45 per cent. should present their receipts at once to the Pennsylvania Company for Insurance on Lives and Granting Annuities. (April 7, p. 255.)

MEXICAN NATIONAL.—Call has been issued for $116,000 of the 6 per cent. 40-year first mortgage prior lien issue of $12,500,000 to be paid at par on June 1 at the office of the company in New York, or at Messrs. Matheson & Co., London, at a rate to be hereafter announced.

MINNEAPOLIS & ST. LOUIS.—Deeds have been filed transferring the Wisconsin, Minnesota & Pacific, which extends from Morton, Minn., to Watertown, S. D., 123 miles, to the M. & S. L. Bonds are already issued to cover this property. (Feb. 24, p. 148.)

NORTHERN CENTRAL.—Consolidated general mortgage bonds have been called for payment at the London Joint Stock Bank, Ltd., London, or at the office of the treasurer of the railroad in Baltimore, on July 1 as follows: Series A, 104 bonds, and series B, 52 bonds, amounting altogether to £31,200, or $156,000.

ST. JOSEPH, SOUTH BEND & SOUTHERN.—The property of this company, recently incorporated as successors to Indiana & Lake Michigan, is reported sold to the Lake Shore & Michigan Southern, possession to be taken April 15. (Feb. 10, p. 111.)

ST. LOUIS & SAN FRANCISCO.—Fifteen first mortgage 6 per cent. bonds of the Fort Smith & Van Buren Bridge are called for redemption at 105 and interest at the Mercantile Trust Co., New York, on Oct. 1.

SIOUX CITY, O'NEILL & WESTERN.—The date of foreclosure sale is fixed at May 26, to be held at South Sioux City, Ia. (March 3, p. 164.)

TACOMA & COLUMBIA RIVER.—On application of the Continental Trust Co., of New York, as trustee, Stuart Rice was appointed receiver for this company at Tacoma, Wash., April 5. It is alleged that the interest due last September on the $500,000 mortgage made in September, 1897, is not paid. The line as projected is to run from Tacoma, Wash., to the Dalles, Ore., 145 miles, of which about 13.5 miles is completed. A part of the company's line was formerly the Tacoma, Lake Park & Columbia River, sold under foreclosure in September, 1896. The capital stock is $3,000,000.

Otto T. Bannard, President of the Continental Trust Co., New York, Elijah Smith and Alfred Kessler, of Kessler & Co., have consented to act as a committee to protect the interests of the first mortgage 5 per cent. gold bonds, and bondholders are requested to deposit their holdings with the Continental Trust Co., New York.

YORK SOUTHERN.—Sperry, Jones & Co., of Baltimore, have bought a controlling interest in this line and propose to extend it south about 42 miles to Baltimore, and later northward from York, Pa., about 21 miles to connect with the Philadelphia & Reading. The line now runs from York, Pa., to Delta, 37 miles.

Electric Railroad News.

AKRON, O.—Henry A. Everett, President of the Cleveland Electric Ry., is reported to have bought about two-thirds interest in the Akron St. Ry & Illuminating Co., by securing the holdings of Samuel Thomas of New York, formerly President of the Akron company, which was recently sold at auction on behalf of the stockholders. It is said it will be operated in connection with the lines in Cleveland.

BROCKTON, MASS.—A syndicate represented by J. P. Morgan & Co., New York, has bought 7,000 shares of the Brockton St. Ry. Co., and now owns a controlling interest. This road is about 45½ miles long, and the capital stock of the company is $700,000, its bonded indebtedness being $750,000. Control will be from May 1.

BROOKLYN, N. Y.—The time has been extended for depositing the stock of the Brooklyn Union Elevated RR. Co. with the Central Trust Co., as depository, from April 3 to April 20. (March 31, p. 238.)

George B. Cornell, who has been Chief Engineer of the Brooklyn Elevated RR. since it was started, has resigned. John Breckenridge, Chief Engineer of the Brooklyn Rapid Transit Co., who recently secured control of the Brooklyn Union Elevated, which is the reorganized Brooklyn Elevated, has had his jurisdiction extended over the whole consolidated system.

At a meeting of the stockholders of the Nassau Electric RR. Co., April 11, new Directors were elected as follows: Col. T. F. Williams, Anthony N. Brady and Clinton L. Rossiter, who are identified with the Brooklyn Rapid Transit interests, which has a lease of the Nassau.

DENVER, COL.—Suit has been begun by Flora Fields of New York, a stockholder of the Denver Consolidated Tramway Co., for an injunction to restrain that company from issuing any more bonds, and the court has been asked to declare the consolidation with the Denver cable railroad company null and void. It is alleged that the consolidation conflicts with the Constitution of the State of Colorado.

DETROIT, MICH.—F. E. Merrill has been appointed Manager of the Detroit, Ypsilanti & Ann Arbor Ry. Co., the appointment taking effect April 3. President J. D. Hawkes has heretofore acted as General Manager.

JERSEY CITY, N. J.—At the annual election of the North Jersey St. Ry. Co., April 5, the following officers were elected: President, E. F. C. Young; Vice-President, David Young; Secretary, Wilbur Johnson; Treasurer, E. N. Hill; Auditor, E. D. Hibbs; Purchasing Agent, Gordon Campbell. The Directors elected were reported in this column March 31, p. 238.

LAWRENCE, MASS.—A controlling interest in the Lowell, Lawrence & Haverhill St. Ry. Co. is reported sold to a syndicate headed by J. P. Morgan & Co. The stock bought was that held by the Industrial Improvement Co., and constituted a majority of the stock, amounting to a transfer of about $3,000,000. This company recently filed an amendment to its charter relative to its capital stock, which at that time was $1,900,000, of which $1,500,000 was issued.

LONG ISLAND.—The special meeting of stockholders to pass on the issue of $45,000,000 new bonds set for April 11, has been postponed to May 6, at Jamaica, L. I. (April 7, p. 255.)

NASHVILLE, TENN.—Hambleton & Co., of Baltimore, have secured control of a majority of the stock of the Nashville St. Ry. Co., and of the entire stock of the Cumberland Electric Light & Power Co. Both companies will be consolidated, and it is stated that Major E. C. Lewis has been selected as President of the new company. The Nashville St. Ry. has an outstanding capital stock of $1,500,000, and mortgages amounting to about $2,250,000. The system is about 47 miles long. About a half million dollars will be expended in rebuilding the present lines and adding new cars and making improvements to the power house.

PATERSON, N. J.—David Young, Vice-President of the North Jersey St. Ry. Co., has been appointed by Judge Kirkpatrick, in the United States Court at Newark, Receiver of the New Jersey Electric Ry. Co., which operates between Hoboken and Rutherford. Mr. Young succeeds John L. Hines, formerly President of the company, and of late Receiver. (Hoboken, Jan. 11, 1898, p. 112.)

PITTSBURGH, PA.—G. F. Greenwood has resigned his position as General Manager and Engineer of the Consolidated Traction Co., his resignation taking effect April 6. Mr. Greenwood will continue his connection with the company as Consulting Engineer, and the office of General Manager has been abolished. Charles Fitzgerald has been appointed General Superintendent in charge of all the lines of the Consolidated company. Mr. Greenwood, as General Manager, made the plans for the new power house now building at Twelfth St., and recently described in the columns of the Railroad Gazette.

QUAKERTOWN, PA.—The Quakertown Traction Co., which has completed part of its proposed system, has been granted authority to carry mail and express matter on its Quakertown and Richmond branch, and also on its Doylestown extension.

SIOUX CITY, IA.—The Sioux City Traction Co. is the name of the consolidated street railroads of Sioux City. The officers are: President, J. S. Lawrence; Vice-President and Treasurer, Abel Anderson. Including the officers, the following are additional Directors: John P. Allison, J. A. O'Grady and J. S. Goodwin. (April 7, p. 256.)

WASHINGTON, D. C.—In consolidating the various street railroads, the stockholders of the Metropolitan Ry. and the Columbia Ry. are notified that their stock will be bought by a committee in the interest of Frederick C. Stevens; the stock of Metropolitan at $230 a share, and of the Columbia at $150 a share. The stock is to be deposited with the American Security & Trust Co.

WHITE PLAINS, N. Y.—The Union Ry. Co., of New York, controlled by the Third Ave. RR. Co., has secured control of the Tarrytown, White Plains & Mamaroneck Ry. by purchase. The T., W. P. & M. owns about 20 miles of franchises in Westchester County, and operates a road from Tarrytown, on the Hudson, to Mamaroneck, on the Sound, passing through White Plains. The Union Co. now controls all the surface lines in Westchester County except one in Larchmont and another in Port Chester.

TRAFFIC.

Traffic Notes.

The railroads of the South Atlantic States have established the Southeastern Classification Committee. The Chairman will be Mr. P. J. McGovern, late chief rate clerk of the Southern Railway, and his headquarters will be at Atlanta.

The Executive Committee of the Guaranty Ticket Brokers' Association met in Chicago last week and decided to do what they could to break up illegal railroad traffic associations. One of the brokers told a reporter that a Chicago lawyer had been engaged to carry on their case in the courts.

The committee representing the principal roads in the late Joint Traffic Association met in New York last week, to consider the question whether the organization ought to be restored, in a modified form; but no decisive action was taken. The committee consisting of the former managers, will further consider the subject and report to a meeting of the Presidents which is to be held on April 25.

An Interstate Commerce Decision.

The Interstate Commerce Commission, in an opinion by Commissioner Prouty, has rendered its decision in the case of the Board of Trade of Dawson, Ga., against the Central of Georgia and the Georgia & Alabama. The complaint is that these carriers charge higher rates to Dawson than to Eufaula, Americus and Albany, towns in the section of the country surrounding Dawson. The Commission holds: First, that it is undue preference for the Central of Georgia to charge any higher rates on freight from New York or other Eastern cities to Dawson than to Eufaula; second, that it is undue preference for the Central of Georgia or the Georgia & Alabama to charge any higher rates on freight from Nashville, Cincinnati and Chattanooga to Dawson than those in effect from the same points in Albany; third, that it is undue preference to charge any higher rates on freight from New Orleans to Dawson than those which are in force from New Orleans to Americus or Albany, and fourth, that so long as the Southern basing point system of ratemaking is adhered to, it is undue preference to charge any higher freight rates to Dawson than those which may be in effect to Americus.

Stopping Off Cotton to be Compressed.

The Interstate Commerce Commission, in an opinion by Commissioner Prouty, has decided the case concerning alleged unlawful rates and practices in the transportation of cotton by the Kansas City, Memphis & Birmingham and others. The case mainly involved the practice of "floating cotton." The commission finds that the essential transportation feature is carrying the cotton to a compress, receiving it again in the compressed state, and transporting it to destination at the through rate in force from the point of origin. The practice is found to benefit both the railroad company and the producer, and to tend toward placing non-competitive points upon an equality with more distant competitive localities from which lower rates are in force. The commission holds, first, that the carrier may, as part of a contract for through shipment, allow the cotton to be stopped off for the purpose of grading and compression; but that the privilege enters into and becomes part of the service covered by the rate, and should be specified in the published tariffs; second, that the determinative feature of a through shipment is the contract, and if the cotton starts and proceeds upon a contract for through shipment, as is shown to be the fact in this case, it may be considered as a through shipment and be given the benefit of a through rate.

Chicago Traffic Matters.

Chicago, April 12, 1899.

The long-threatened clash among the eastbound lines in the matter of passenger rates has come to pass. The Michigan Central has started the ball rolling by tendering to all Western roads, for basing purposes, the same rates as those in effect by the differential roads from here. Before General Passenger Agent Ruggles, of the Michigan Central, applied for differential representation in Western territory, he was given to understand by all the lines west of here that his contemplated action would meet with their approval and that they would accept the new rates. But as soon as Mr. Ruggles tendered the same a hurried meeting of the Western Passenger Association was called and a resolution was passed refusing to accept his offer. In the face of this resolution, however, the Chicago & Alton subsequently gave notice that it would accept the Michigan Central rates. It is the general opinion that in spite of the resolution the Western roads will adopt Mr. Ruggles' rates. The move of the Michigan Central in lowering its Western basing rates to the plane of the differential lines is, it is believed, but a preliminary move to meeting the differential rates from Chicago proper. The standard lines first came down to the differential level on the Pacific Coast, then in all other Western territory, and the next step will be over the counters of the city ticket offices in Chicago.

A 3,000 mile ticket has been put on sale by the Atchison, Topeka & Santa Fe. It will be in addition to the 5,000 mile interchangeable Sebastian ticket, and will be good only over Atchison lines. The company felt that its patrons demanded something else besides the big ticket.

The action of the Great Northern road in reducing its first class sleeping car rate from St. Paul to the Pacific Coast $1.50 has forced the Pullman Company to make similar reductions not only from the twin cities but from all other points where the Great Northern's competition is felt.

The eastern and western lines in this district are trying to adjust the much-talked-of 13½ cent export corn rate from Mississippi River points to the East. At a meeting in this city a committee was appointed to confer with the officers of the St. Louis and southwestern roads to see whether a more satisfactory set of rates could be agreed on. The prospect of improvement is, however, very slim, as the lines to Newport News and Baltimore have reduced the rate from East St. Louis still further. On the 13½ cent basis (Miss. River to N. Y.), the rate to Baltimore and Newport News is 12 cents. This they have reduced to 10½, claiming that they cannot get their share of the grain traffic unless they return to the former differential of 3 cents under New York.

The executive officers of Western and Southwestern roads held a meeting here yesterday to discuss the maintenance of rates, but did nothing important. Each representative declared that his road was strictly complying with the Interstate Commerce law and believed that all other roads were doing the same. Resolutions were adopted unanimously that no deviations be made from published tariff rates in the future. The resolutions further express the desire of the railroads to co-operate with the commission in securing a strict enforcement of the Interstate Commerce law.